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# INTER-WARD DIFFERENCES IN SOCIAL INTERACTION BETWEEN ATTENDANTS AND PROFOUNDLY-RETARDED CHILDREN

by

(C)

COLLEEN HERMANSON

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled INTER-WARD DIFFERENCES IN SOCIAL INTERACTION BETWEEN ATTENDANTS AND PROFOUNDLY-RETARDED CHILDREN submitted by Colleen Hermanson in partial fulfillment of the requirements for the degree of Master of Education in Special Education.

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## ABSTRACT

The observational study reported here was designed to sample, *in situ*, the non-verbal, verbal, and physical interactions between non-ambulatory, profoundly-retarded children and young adults on the one hand, and their attendants in a residential hospital on the other. Considering the limited response repertoire of the subjects, two aspects of attendant-resident interaction were of particular interest: (1) the frequency of social interaction; and (2) whether interaction was affected more by ward placement or by resident characteristics.

A second purpose of this study was to investigate the hypothesis that the Adaptive Functioning of the Dependent Handicapped scale (Marlett et al., 1974) measures four discrete areas of functioning.

To gather empirical data on these research questions, observations were made over a six-week period of the interactions of 77 residents and their attendants in four wards of a single institution. The attendants were either engaged in child care, or they were supervising the children during recreation periods. Inter-ward comparisons were made of interaction variables (non-verbal task-related, verbal task-related, verbal non-task-related, physical, and play/instruction) and the resident characteristics (nursing care required, physical development, awareness, and self help) as measured by the Adaptive Functioning of the Dependent Handicapped scale (A.F.D.H.). In addition, the scores of the residents on the A.F.D.H. were factor analyzed.

There were significant differences found between the wards in the amount of time attendants spent talking to the children during child care and in the amount of time they played with the children during supervision. Attendants in all wards tended to interact more frequently with female residents than with male residents, and this difference in attention reached significance ($p < .03$) in the case of conversation during supervision. The amount of time attendants spent playing and instructing male residents during supervision also varied significantly ($p < .002$) between wards. There were no differences, either on the basis

of ward or sex, in the amount of physical interaction between attendants and residents.

The significant variations in attendant-resident interaction between wards and sexes could not be accounted for by differences between wards and sexes in average score on the A.F.D.H.

It is assumed that differences in interaction rates on the basis of sex may be explained, at least in part, by the fact that the entire child care staff of the institution was female, and the average child-care worker may have been more inclined to socialize with members of her own sex.

The results of this study are in agreement with the findings of King, Raynes, and Tizard (1971) that administrative practices, rather than level of handicap of residents, are important determinants of the type of child-care environment which is available to severely and profoundly retarded children in residential institutions. There was a low correlation found between functional level and amount of interaction received. On the other hand, there were significant *inter-ward* differences in the amount of social interaction between staff and residents. Also, ward management and level of participation by senior staff in recreational activities with the children differed between wards and seemed to account in part for the differences in interaction found.

A factor analysis of the A.F.D.H. scale indicated that the scale seems to be tapping three important aspects of functioning: general mobility, fine motor skills, and responsiveness.

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# CHAPTER I

## INTRODUCTION

According to the functional analysis of retarded development (Bijou, 1966), retarded behavior is the outcome of atypical social, physical and/or biological conditions which change the rate of psychological development. Psychological development, for both normal and deviant individuals, consists of progressive changes in behavior which are brought about by the interaction of an individual--as a total biological unit--with his social and physical environment. Atypical conditions of development may arise from anomalies in anatomical structure and/or physiological functioning; a history of inadequate reinforcement and discrimination; the consequences of contingent aversive stimulation; and the reinforcement of aversive behavior (Bijou, 1966, p.6).

Under this formulation, an individual with gross organic damage or deviation dating from birth or early infancy would be expected to exhibit retarded behavior because of deviant biological conditions which would limit his capability to take advantage of, and respond to environmental stimulation. At the same time, variations in physical and social conditions associated with development could be expected to exacerbate or mitigate the degree of behavioral retardation exhibited.

Many large institutions for the mentally retarded contain a small number of children who are classified as profoundly retarded or totally dependent. These are the children who, as a result of a defective biological condition, physiological trauma, or disease process require constant nursing care for survival. They are usually placed in institutions at birth or shortly thereafter and remain there throughout their lives. Many of them are non-ambulatory, incontinent, and do not produce intelligible speech. They typically fail to develop such task-oriented independent responses as feeding, washing, or dressing themselves and spend their lives in a state of infantile dependency. Their social reactions to other people tend to be extreme, varying between clinging indiscriminately to adults or ignoring them completely (Spradlin and Girardeau, 1966). Also they engage in a great deal of seemingly aimless, repetitive behavior such as rocking back and forth, rolling their heads

from side to side, and flicking their fingers in front of their eyes. It is not clear, however, how much of this gross retardation and bizarre behavior may be attributed to deviant biological conditions and how much is the result of inimical conditions in the institutional environment.

There is widespread agreement that general intellectual retardation, retardation in language functions, and atypical social and emotional behavior are frequently occurring sequelae to institutional placement in childhood--even among normal children. Excessive rocking, for example, is frequently cited in the maternal deprivation literature as being characteristic of babies who have received insufficient sensory stimulation (Casler, 1961). Similarly, the commonly reported inability of normal children with a history of institutionalization to establish and maintain close personal relationships has been explained as a personality disturbance (Ainsworth, 1962; Yarrow, 1961), rooted in the lack of opportunity for interaction with a mother figure (psychoanalytic theory), or in the inadequacy of available social stimulation (learning theory). In contrast, there has been a tendency--at least in the past--to relate personality disturbances in institutionalized mentally retarded children to aetiology more often than to environmental variables (Menolascino, 1965; 1967; Rollin, 1946).

Research designed to assess the effects of institutionalization on mentally retarded children has most often entailed the comparison of the behavior and development: (a) of institutionalized with non-institutionalized mentally retarded children; or, (b) of two groups of institutionalized children, where one group has been involved in a program which is not part of the regular institutional routine. In the few studies using mongoloid children as subjects (Centerwall and Centerwall, 1960; Kugel and Reque, 1961; Stedman and Eichorn, 1964), it was found that home-reared children were superior to institution-reared children in speech behavior, walking, and manipulative skills. The superiority of the home-reared children in manipulating crayons and small objects was attributed to their greater access to, and opportunity to practice with these items. Their superiority in walking and speech skills was attributed to more active coaching in these skills, plus the possibility that the home-reared children may have had the example of normal children to follow (Stedman and Eichorn, 1964). Shotwell and Shipe (1964) compared the intellectual

and social development of children who had been reared at home for two years and then placed in a private institution, with children who had been in an institution from birth. While both groups showed an IQ drop after three years in the institution, the children who had initially been reared at home maintained a better rate of social and intellectual growth.

Studies comparing the behavior and development of institutionalized mentally retarded children under routine care and under experimental conditions have, in most cases, dealt with special teaching programs organized along nursery-school lines. These programs have differed greatly in duration--from four weeks to three years; in the number and characteristics of the "teachers"--e.g., child-care attendants, elderly people on welfare, mildly-retarded women; and the program setting--e.g., special classrooms, wards in institutions, and non-institutional settings. The goal of the programs has been to improve the daily living skills of the children in areas such as self-help and communication. An exception was the McKinney and Keele (1963) program which put emphasis on providing physical affection for severely-retarded boys, in line with the hypothesis that decreases in awareness and adaptability following institutionalization stem from sensory deprivation, especially lack of tactile stimulation.

It is reported in all cases that the average child in the experimental groups made significant progress in social skills vis-a-vis the average child in the control groups. But it has proved difficult to isolate the specific factor or factors which brought about the improvements. The teaching programs differed very much in structure and content; and, in one case (Gray and Kasteler, 1969), the children in both the experimental group and the control group made significant gains in social competence during the course of the study.

It is apparent, however, that the amount and type of adult-child interaction is an important factor in improving social competence. The basis for socialization is the interaction between adult and child; inasmuch as the adult serves not only as a model for child behavior, but also as both a regulator and interpreter of child experience and behavior, and as the first source of social reinforcement. An increase in adult-child interaction is a feature common to all the research studies of changes in institutional environments. Similarly, there is a growing body

of evidence from the detailed study of institutional environments that an assessment of the amount and type of adult-child interaction, as embodied in child-management practices in institutions for the mentally retarded, can be used to make meaningful distinctions between one type of institution and another (King and Raynes, 1968 (a); Klaber, 1969; McCormick, Balla, and Zigler, 1975).

It is not clear, however, why differences in child-management practices arise. A group of English researchers (King, Raynes, and Tizard, 1971) suggest that the type of child-management practices found in an institution can be accounted for in terms of its organizational structure. Institution-oriented institutions usually have rigid organizational structures in which the lines of authority and staff roles are clearly defined and adhered to. What this means in terms of child care is that the head of a ward or unit tends to have little say in making decisions about the children or about the way in which the ward should be run. Her role is to follow orders given by a higher authority and she is subject to frequent inspection to ensure that she is carrying out her role. In child-oriented institutions, on the other hand, the organizational structure is flexible and roles are less clearly defined. The head of the ward has a great deal of autonomy in the running of the ward and has more responsibility for the childrens' care and development.

By contrast, McCormick, Balla, and Zigler (1975), who have recently carried out an assessment of 19 American and 11 Scandinavian institutions using the Child Management Scale developed by King and Raynes (1968(a)), did not consider organizational structure or bureaucratic practices relevant to differences found in child-care practices in institutions; in any event, they made no attempt to assess institutions along these lines. A major finding of their study was that living units for severely-retarded residents were characterized by more institution-oriented care practices. This disclosure was interpreted by the authors as evidence that the depersonalized treatment and regimentation found in institution-oriented institutions stems, in large part, from the unresponsiveness of the residents. At the same time, McCormick, Balla, and Zigler found that large numbers of residents per living unit were also predictive of institution-oriented child-care practices. Because of the

constant care they require for survival, very severely handicapped children are placed in hospitals, which tend to be large and centrally located. Thus, the institution-oriented child-care practices found for more severely retarded residents could also be interpreted as resulting from the type of institution they were in rather than from the actual characteristics of the children.

There is virtually no information available on the social environment of profoundly-retarded, non-ambulatory, multiply-handicapped children in residential institutions. Of all groups, these children are the most dependent on their attendants, since they can neither take care of their own physical needs nor even communicate these needs through language. Their limitations of movement, coupled in many cases with sensory impairments, render them minimally able to gain the experience which is essential for intellectual development. Without physical and social contact with others, they are abnormally isolated from ordinary human experiences.

The main aim of this thesis was to investigate the amount and type of interaction between non-ambulatory, profoundly-retarded children and their attendants.

Prior to undertaking the main research project, a pilot study was undertaken in another institution to select relevant variables and to test coding techniques. Results of the pilot study indicated the possibility that, given residents of the same sex, age, and level of disability, significant differences in the amount and type of interaction between attendants and residents could be found *between wards in the same institution*.

Accordingly, the research reported here is a comparison between four wards of a single institution with respect to the amount and type of interaction observed between attendants and profoundly-retarded residents.

## CHAPTER II

## REVIEW OF RELATED RESEARCH LITERATURE

### The Effects of Changes in the Institutional Environment

Research into the effects of changes in the environment of institutions for the mentally retarded can be divided into those studies where a great many aspects of the environment were changed (e.g., the physical environment, the staff-child ratio, and the day-to-day routine) and those studies where only certain aspects of the environment were changed (e.g., the introduction of training programs, or a change in environmental response to specific behavior during operant conditioning).

In the Brooklands experiment (Tizard, 1964), for example, many environmental changes were made. Sixteen severely-retarded (imbecile) children were moved from a London hospital for the mentally retarded to a large house in the country. They lived there in family groups for two years. Because the "house mothers" lived in the same house as the children did, ate meals with them, and gave them a great deal of individual attention, the Brooklands children were able to see and model a greater range of normative adult behavior, receive more coaching, and have a greater opportunity to practise new skills than the children who remained in the hospital. When contrasted with a matched group from the hospital, the Brooklands children all became less emotionally maladjusted, more independent, and more able to play socially and constructively than the controls. In addition, they showed a marked and significant rise (averaging 14 months) in their verbal mental age as against 6 months for the children who had remained in the hospital over the two-year period.

A similar experiment (Stephen and Robertson, 1966; 1970) compared the progress of 20 severely- and profoundly-retarded children who lived in a family group in their ward and attended a special nursery program with similar children in the same hospital under routine care. After one year, seven of the 20 experimental children showed more improvement in daily living skills and language than the controls. The children with IQs "around 20" made only slightly greater improvement than the controls

while no changes were noted in the children with IQs below 20. The authors felt that the low-functioning children had not benefitted from the program.

Studies involving more limited changes in the institutional environment are those where children have taken part in special programs. Mitchell and Smeriglio (1970) reported that, with the exception of children with Social Quotients below 30, direct teaching of social competence and pre-academic skills in a program organized along nursery-school lines was instrumental in maintaining social skills at the pre-admission rate after three years of institutionalization (Mean pre-admission SQ = 35.76, SD 10.91; Mean post-admission SQ = 36.80, SD 19.81). Children not receiving the special teaching showed a much slower rate of mental growth (Mean pre-admission SQ = 35.92, SD 12.00; Mean post-admission SQ = 25.28 SD 13.96). The children in the experimental program were superior to the controls on categories of the Vineland Scale assessing Socialization, Self-Help Eating, Occupation, and some items in the Communication category. By analyzing the results for both groups of institutionalized children and comparing them with the pattern of development shown for normal children, the authors found that both groups of institutionalized children obtained the lowest scores in those items which measure language development, and had the highest scores in those items which test locomotion and general self-help skills. Those children in both groups who were initially low in social competence (SQs below 30) showed a marked tendency to decline still further (cf. Stephen and Robertson, 1970).

Better results with low-functioning children (IQs below 35) were reported by Jungjohann and Kaufman (1966). Sixty severely-retarded children were divided into small groups (three to five children) under the care of one aide, who cared for them exclusively throughout the day. Sixteen of the children were matched with 16 similar children in another institution under routine care. After 16 months, the "milieu therapy" children were significantly superior to the routine-care group in manipulative skills and social behavior.

Gray and Kasteler (1969) reported on a year-long demonstration project where elderly men and women were paid to act as foster grandparents to 70 institutionalized mentally-retarded children (12 moderately

retarded; 28 severely retarded; 32 profoundly retarded). The basis for the implementation of the "foster grandparent" program was the hypothesis that decreases in social competence following institutionalization are the result of social deprivation in the form of reduced social contact with supportive adults. The "grandparents" spent four hours a day with the children in the experimental group, taking them from the wards either out-of-doors or to private rooms singly or in small groups and attempting to teach them basic social and self-help skills, simple academic skills, physical skills, and arts and crafts. The methods of training used were demonstration and social reinforcement. The experimental group was matched very closely with a group of 70 children who remained in the institution under routine care. The composition of the two groups was similar in chronological age, mental age, sex, and school attendance. At the start of the project there were no significant differences between the groups in mean social competence. After one year, both groups showed significant increases in social competence scores. The mean Social Age of the experimental group went from 4.01 to 5.47 ($p < .01$) and the mean Social Quotient increased from 33.43 to 42.07 ($p < .01$). The mean Social Age of the control group went from 3.98 to 4.33 ($p < .01$) and the mean Social Quotient increased from 31.74 to 33.70 ($p < .01$). However, the social competence of the experimental group showed a greater mean gain, and there was a significant difference between the social competence scores of the two groups at the final testing. The increase in social competence of the control group was unexpected, because they did not receive any special training during the period. On the other hand, the children left in the wards may have benefitted from the reduced resident/staff ratio (usually 15:1) in the way of more interaction with the attendants.

A study somewhat similar in design to the foregoing project, was the "mothering" experiment carried out by McKinney and Keele. In this study (McKinney and Keele, 1963) the hypothesis was that institutionalized mentally retarded children suffer from sensory deprivation in the institutional environment in the absence of a mother or "mother substitute", and that this sensory deprivation leads to a decrease in awareness and adaptability. The McKinney and Keele project is one of the few published

studies dealing exclusively with retarded children with IQs below 30. The experimental group was made up of 24 "severely retarded" (IQs below 30) boys matched with a control group by sex, social quotient, chronological age, extent of toilet training, self-feeding ability, and number of years in the institution. Twelve mildly-retarded women were assigned to the experimental group and were encouraged to "adopt" two boys each for a period of four weeks. The "mothers" visited the boys for at least four hours a day, five days a week, and were encouraged to play with them, teach them new skills and words, and show physical affection for them by hugging and touching them. After four weeks of mothering, the experimental group had significantly increased their purposeful behavior and verbal expression in relation to the control group. At the same time, the experimental group had decreased the average incidence of asocial behavior and random activity compared to the boys in the control group.

Another group of studies which explores the effects of changes in the institutional environment of mentally-retarded children are those which describe experimental programs using operant conditioning. Here the changes occur in the environmental responses to the specific behavior which is being modified. These operant-conditioning programs, usually carried out on a one-to-one basis, have proven particularly effective in changing the behavior of severely-retarded and profoundly-retarded children and adults and have led to improvements in self-feeding (Bensberg, Colwell and Cassel, 1965; Pursely and Hamilton, 1965; Spradlin, 1964), dressing (Bensberg et al., 1965) and toilet-training (Dayan, 1964).

Despite their diversity in design, a feature common to all the foregoing studies was an increase in the adult-child ratio, which would provide more opportunities for adult-child interaction. Even in the behavior modification studies, there is a question as to whether the improvements in behavior were due solely to the techniques employed or whether the increased attention received by the subjects made a significant contribution (Bensberg, Colwell and Cassel, 1965).

Comparisons of Institutional Environments

Because of the large number of variables involved, it has been difficult to describe prevailing institutional environments in quantifiable ways. The independent variables selected for study in some cases have been child management practices (King and Raynes, 1968 (a), (b); Raynes and King, 1968; McCormick, Balla and Zigler, 1975), interaction between staff and children (Dailey, Allen, Chinsky, and Veit, 1974; Thormahlen, 1965), and child behavior and attendant response (Warren and Mondy, 1971).

After carrying out detailed investigations of 16 institutions for the mentally retarded, King and Raynes (1968 (a)) devised a Child Management Scale which reliably distinguished two patterns of institutional care--child-oriented and institution-oriented. Child-oriented practices involved individual treatment, flexible routines, opportunities to learn and practise social skills, and less formal interaction between staff and children. Institution-oriented practices, on the other hand, were characterized by rigid routines, lack of privacy and individual treatment, virtually no opportunity to learn, let alone practise social skills, and little interaction between children and staff except in the course of physical care. *The key factor which distinguished institution-oriented and child-oriented practices was the amount and nature of staff-child interaction.* Both the unit heads and the junior staff in child-oriented institutions spoke to the children one-and-one-half times more than did the staff in institution-oriented units; and they were twice as likely to respond positively to the children and three times less likely to ignore the children, or to respond to them in a negative way, than the staff in the institution-oriented units. The way in which the unit head performed her duties was found to be related to the type of training she had received. High rates of interaction between the unit head and the children were associated with training in child care as opposed to nursing training. Unit heads in child-oriented units were given much more responsibility for the administration of their units, and were subject to less frequent inspection than the unit heads of institution-oriented units. There was greater role diffusion, lower turnover of staff, and higher

"effective" staff-resident ratios for different periods of the day in child-oriented units. Child-management practices could not be predicted on the basis of institution size, resident-to-staff ratio, nor degree of handicap of the resident. On the other hand, the bureaucratic structure of an institution and its relationship to administrative practices governing unit autonomy was found to have an effect on child-management practices (King, Raynes, and Tizard, 1971).

McCormick, Balla, and Zigler (1975) used the Child Management Scale (King and Raynes, 1968 (a)) to investigate institution-oriented and child-oriented care practices in 166 living units in 19 institutions for the mentally retarded in the United States and 11 institutions in a Scandinavian country. The American study found that the Child Management Scale reliably differentiated two types of child care. Living units in the Scandinavian country tended to be more child-oriented than those in the United States. In both countries, institution-oriented units were more characteristic of large institutions. Other factors, such as ratio of attendants to children, cost per resident per day, and number of professional staff per resident were not predictive of child-care practices. However, in both the United States and Scandinavia the level of retardation of the residents was highly predictive of child-management practices. *Living units for more severely retarded residents were characterized by more institution-oriented care practices* (McCormick, Balla, and Zigler, 1975, p. 15). The authors considered this finding to be consistent with evidence that the amount and type of interaction adults have with children is as much influenced by the characteristics of the child as it is by the characteristics of the adult (Bell, 1968; Yarrow, Waxler, and Scott, 1971). They considered that the less responsive, severely-retarded child would provide less feedback than a more cognitively competent child. Thus, unlike the English researchers (King, Raynes, and Tizard, 1971), McCormick, Balla and Zigler found that level of handicap is an important factor in determining child-care practices. At the same time, they point out that the setting in which severely-retarded children are typically placed--large, central institutions rather than group homes--may have a great deal to do with the institution-oriented practices they encounter.

A study by Dailey, Allen, Chinsky and Veit (1974) also found evidence that the amount of interaction between attendants and mentally retarded children may be influenced by the level of retardation of the residents. They reported that attendants very seldom engaged in social interaction with residents whom they perceived as being of a very low mental level. The interactions of 14 attendants and 37 children (mean IQ = 23; range 43 to 6) were observed over an eight-week period. The researchers were investigating the amount of time spent by attendants in interaction with residents, when these interactions took place, the nature of the interactions, and whether or not resident characteristics affected the amount and type of interaction. It was reported that aides spent only slightly more than half their time interacting with residents. Most of the interactions took place during ward routine (37%) and child care (31%); 9% took place during formal training, and 23% involved initiating social-play behavior ("any interaction ot required solely as a response to the child's physical needs" (p. 587)). The majority (64%) of the interactions were categorized as *neutral* in affect; 21% were *positive*; and 15% were *negative*. The average resident received aide-initiated interactions only 4.2% of the time, and "was engaged in either a positive or social-play interaction in fewer than 1 per cent of the intervals for which he was observed" (p. 590). However, positive and social-play interactions were by no means distributed equally among the residents. Those whom the aides rates as *low* on physical attractiveness, likeability, and *perceived mental level* received a "disproportionately small share"--10% and 9% respectively for positive and social-play interactions. The authors concluded that:

> *except for the relatively few residents who received a disproportionate share of attention, the children in this study were in a inadvertent extinction program for almost all the behaviors which they engaged in throughout the day.*
>
> (p. 590)

Attendant-resident interaction was the subject of a study by Warren and Money (1971), who were investigating the hypothesis that institutional attendants, untrained in behavior principles, may

unwittingly reinforce non-adaptive behavior in the retarded children in their care. Warren and Mondy made two surveys of 49 young, ambulatory, severely retarded (Mean SQ = 22 months) and 15 attendants and coded over 800 samples of child behavior and attendant response. It was found that attending adults ignored over 75% of child behavior; that is, the attending adults failed to respond "either verbally or motorically" to 75% of clearly observed child behavior, regardless of whether the behavior was "appropriate" or "inappropriate". Although 80% of the observed child behavior was categorized as "appropriate", a child was more likely to draw a response of some kind from an attendant by engaging in "inappropriate" behavior.

The verbal and physical interactions of attendants and severely- and profoundly-retarded children formed the source of data for a study by Thormahlen in 1965. This study was designed to assess the amount and adequacy of formal training provided to mentally retarded children by ward personnel in three wards of a state hospital in California. It was reported that 1.9% of the attendants' time was spent in formal training, 93.4% of which involved training the children in social competence. The training provided in the area of personal care was judged by Thormahlen to be of low adequacy. He reported that the staff found it easier to dress, bathe, and toilet the children than to help the children learn these skills for themselves. Dependent behavior was promoted by the staff in 37% of their interactions with the children, whereas independent behavior was promoted only 12% of the time. In 51% of the interactions neither independent nor dependent behavior was promoted. The severely-retarded children received over twice as much training as the profoundly-retarded children; further evidence that the competence level of residents can influence attendant behavior. Thormahlen also reported that instead of providing increased opportunities for training, increases in the number of staff on the ward resulted in the staff engaging in more domestic or administrative work. If they did increase their interaction with the children at all it was to promote dependency by doing more things for them. This finding lends support to the view that the ratio of attendants to children in institutions for the mentally retarded does not have a significant relationship to child management practices (cf. King, Raynes,

and Tizard, 1971; McCormick, Balla, and Zigler, 1975). The children in the institution studied by Thormahlen were minimally encouraged by the institution staff to learn social skills, despite an in-service training program for attendants which was designed to promote their training of the residents in social competence.

In addition to research into institutional environments, cross-institutional studies have been carried out to assess and compare environments in different institutions and to measure their effects on resident behavior. Klaber (1969) compared three institutions for the mentally retarded on aspects of the social and physical environment. On the basis of these investigations, it was possible to delineate two distinct types of institution, which Klaber called the *effective* institution and the *ineffective* institution. The effective and ineffective institutions differed from each other in several important respects. In the effective institution, the children received greater attention from aides; they engaged in more conversations with aides, and their demands were responded to more often. They also received more physical care. The children also received more opportunities to interact with adults other than aides. Unlike the other institutions where children interacted more frequently with peers than with aides or other adults, in the effective institution child-adult interaction (aides and other adults) accounted for the majority of the total interactions. The aides in the effective institution spent less time in ward routine, passive supervision, and in activities unrelated to their work assignment than aides in the two ineffective institutions. However, the most typical ward activity in all the institutions was idleness. The effective institution had the lowest rate of inactivity (26.70%), whereas the least effective institutions had the highest rates (44.40% and 49.74%). The ineffective institutions also had the lowest percentage of children attending institution schools.

Klaber also reported that in both ineffective and effective institutions attendant behavior was affected more by administrative practices, "especially direct supervision", than it was by in-service training or degree of job satisfaction. The attitudes of all the aides showed surprising commonality except insofar as they related to the children in their care. The aides in the ineffective institutions showed

a significantly greater tendency to describe mentally retarded children in negative terms; in contrast to the attendants in the effective institution who tended to describe the children in positive terms.

Parental attitudes towards children showed no difference across institutions. However, parents of children in the effective institution visited their children more often, regardless of the distances involved. Klaber attributed the more frequent visits to the fact that parents were positively reinforced by visiting children who were happier and better adjusted as a result of living in an effective institution. More parental visiting was also found to be a feature of child-oriented institutions (King, Raynes, and Tizard, 1971).

In the same series of investigations, Klaber and his associates were able to show that living in an effective institution can promote self-sufficiency, emotional adjustment, and intellectual growth in its residents. Forty-four severely-retarded children from the three institutions mentioned previously were matched on data gathered five years earlier for age, age-at-admission, sex, race, IQ and MA. An attempt was also made to match by gross diagnostic categories--mongoloid with mongoloid, seizure patients with other epileptics. The children were tested and compared on a *self-sufficiency scale* and an *adjustment index*, both specially constructed by Klaber and his colleagues. The self-sufficiency scale was designed to measure the extent to which a child is able to care for its own needs: feed, dress, and toilet himself, communicate with others, and make his needs known. The adjustment index represented the difference between adjusted (positively-scored) and maladjusted (negatively-scored) behavior, and was considered to be a measure of the happiness of the child. The children in Institution D (an ineffective institution) had the lowest self-sufficiency scores and the lowest adjustment index. On the other hand, the children in Institution E (the effective institution) had the highest scores on both measures. Klaber thus concluded that the environment of an institution has a significant effect on emotional adjustment and the development of self-sufficiency. Furthermore, he suggested that: "the ability of retarded children to care for their own needs is apparently related to the happiness manifested by them" (Klaber, 1969, p. 159). Also, by comparing the MA scores of the

children at the time of the study with those of five years before, it was possible to demonstrate that the children in the effective institution had made significant gains in MA, while the children in the ineffective institution had shown a slight decrease in MA. However, all the children had shown a decrease in IQ over the period.

Some of the children in Klaber's study (1969) in the effective institution (E) had been transferred from the ineffective institution (D) a few years previously in order that they might be closer to their parents' homes. A *primary difference between these two institutions was the amount of contact between the children and their attendant caretakers.* Since institution E was superior to institution D in the amount of contact between children and attendants, it was hypothesized that the children who had remained in institution D would show greater responsiveness to social reinforcement than those who were transferred. The procedure used to measure social responsiveness related to the placing of felt forms on a large felt panel under conditions of *no reinforcement* and conditions of *verbal reinforcement* by the *E* on a fixed-ratio schedule. The dependent variables were the average distance *S* placed the forms from *E* during the first 12 non-reinforced trials, and the time the subject continued the task under conditions of verbal reinforcement until satiation. As hypothesized, the results showed that the children remaining in the ineffective institution showed greater responsiveness to social reinforcement --playing the game longer and approaching closer to *E* than did the transferred children who had lived in a less socially-depriving institution for six years.

The results of these wide-ranging and comprehensive studies by Klaber and his associates highlight the importance of the attendant-child relationship in the modification of the behavior of children reared in institutions. As the next study shows, other aspects of institutional life seem to have little effect on behavior and development.

Balla, Butterfield, and Zigler (1974) in a longitudinal cross-institutional investigation, tested 103 children on their admission to four institutions for the mentally retarded. The children were mildly- to moderately-retarded (mean IQs ranging from 74 to 50 on the PPVT) and were divided into groups by aetiology: 63 familially retarded and 40

organically retarded. After 2½ years of institutionalization, the children were tested again--on MA, IQ, responsiveness to social reinforcement, verbal dependency, wariness of adults, imitativeness, and behavior variability. At the same time, objective characteristics of the four institutions were compared: population, employee turnover, residents per living unit, cost per person per day, numbers of attendants, physicians, nurses, social workers, recreation workers, educators, and volunteer hours per year. The authors reported that: "The effects associated with residing in one institution rather than in another . . . were surprisingly few in number" (p. 547). The only factor which seemed to be affected by institutional placement was the childrens' motivation for social reinforcement. In view of the connection which has been established between motivation for social reinforcement and social deprivation (Butterfield and Zigler, 1965; Stevenson and Fahel, 1961; Zigler, Hodgden and Stevenson, 1958) this finding was interpreted by the authors to mean that significant differences existed between the institutions in the amount and type of staff-child interaction. In fact, Balla, Butterfield and Zigler recommended that:

> *Direct observational studies of the quality of the social interactions between the child caretakers of an institution and its residents (Balla, 1966) and/or attitude surveys of an institution's caretakers (Raynes and King, 1968) would appear to be promising procedures for categorizing institutions in future investigations of cross-institutional effects.*
>
> (p. 547)

Summary

There is much evidence to show that the social and emotional behavior of mentally-retarded children can be affected by changes in the institutional environment. Four broad areas of behavior have been shown to change in response to environmental variations: language and speech skills (McKinney and Keele, 1963; Stephen and Robertson, 1966; Tizard, 1974); self-help skills and manipulative ability (Bensberg, Colwell and Cassel, 1965; Gray and Kasteler, 1969; Mitchell

and Smeriglio, 1970; Tizard, 1967); and emotional adjustment and social responsiveness (Balla, Butterfield, and Zigler, 1974; Klaber, 1969; Tizard, 1964).

A feature common to all these research projects was that the children in the experimental groups were afforded increased opportunities to interact with adults. Social reinforcement has been shown to be very effective in modifying the behavior of mentally retarded children in institutions (Dentler and Mackler, 1961; Stevenson and Fahel, 1961; McKinney and Keele, 1963; Pero, 1955). Indeed, an increase in social reinforcement may account for most of the improvements in social competence reported. In this connection it is interesting to note that in the Gray and Kasteler (1969) study, both the experimental and control children showed gains in social competence over the time of the study. The control children were not given any special instruction but received increased attention from ward personnel.

The importance of the adult-child relationship in child development has received fresh emphasis as a result of large-scale studies of different institutional environments. Attendants in child-oriented or "effective" institutions were found to talk to the children more than was the case in institution-oriented or "ineffective" institutions. Children living in the better care environments of "effective" institutions were also reported to be more self-sufficient, better adjusted, and less socially deprived than children living in "ineffective" institutions. Thus, significant variations in child-care practices within institutions for the mentally retarded have been demonstrated; and, to a lesser extent, the variations in child management have been linked to variations in child development and behavior. What is far from clear, however, is why these variations in child-care practices arise. Some of the factors brought forward to account for child-care differences are: number of residents per living unit; type of training received by attendants; the characteristics of the children, and the organizational structure of the institutions. Future research will undoubtedly bring into focus the relative importance of these aspects of institutional life. In the meantime, in view of their demonstrated

effects on the behavior and development of mentally retarded children, the frequency and nature of the interactions between attendants and children merit close consideration from workers in the field of mental retardation.

# CHAPTER III

## PILOT STUDY

A pilot study was carried out in an institution other than the one in which the major study was done. Ten profoundly-retarded, non-ambulatory, multiply-handicapped males in two wards (five in each) of a mental retardation hospital were observed from 8:30 A.M. to 8:30 P.M. for five consecutive days. For every observation round the children were observed one at a time for 10 minutes--made up of ten 30-second observation intervals interspersed with ten 30-second recording intervals. Any interaction which occurred in that time was coded under one of five categories: (1) non-verbal task-related, (2) verbal task-related, (3) verbal non-task-related, and (4) play (for definitions, see page 28 under *Procedure*). The fifth category was physical interaction. Where physical interaction and any other type of interaction occurred simultaneously both were scored. There was also a *Response* category, which referred to any interaction which occurred as a direct result of child behavior.

The subjects were non-self-feeding, incontinent, non-ambulatory, and had not developed intelligible speech. Their ages ranged from 13 to 21 years, with the average being 18 years. The average resident in Ward 1 had been institutionalized for 12 years from the age of 6½; whereas the average resident in Ward 2 had been institutionalized for 14 years from the age of 4½ years.

As can be seen from Table 1, there was no significant difference between wards in the amount of time devoted to child care. On the other hand, during supervision time, there was significantly more interaction between attendants and children in Ward 2 than there was between attendants and children in Ward 1 ($p < .01$).

Table 1

Amount of Attendant-Child Interaction Time
as a Percentage of Total Observation Time

| | Ward 1 | Ward 2 | $\chi^2$ | $p$ |
|---|---|---|---|---|
| Child Care | 7.23 | 10.45 | 1.35 | n.s. |
| Supervision | 0.30 | 2.00 | 8.16 | $< .01$ |

It is apparent that interaction with the staff accounted for only a small percentage of the childrens' time. As reported by Morris (1969) and Klaber (1969) for less-retarded, ambulatory children in institutions, the children in this study spent most of their time doing nothing. Their limited mobility and lack of speech virtually ruled out interaction with their peers. And, as far as parental or other visits were concerned, during the time the children had been moved from other institutions to the present one (four or five years in most cases), in Ward 1 two children had had no visits, one had had a visit within six months, one had had a visit within three months, and the other received a weekly visit from his mother. In Ward 2, none of the children had received visits. Since the staff of the institution constituted the most constant, and in some cases, the only source of social stimulation for the children, the *type* of interaction between staff and children (Table 2) might be said to be even more important for these children than the amount of interaction.

Table 2
Type of Attendant-Child Interaction
as a Percentage of Total Interaction

| | Ward 1 | Ward 2 | $X^2$ | $p$ |
|---|---|---|---|---|
| Child Care: | | | | |
| Non-Verbal, Task-Related | 36.73 | 44.44 | 2.39 | n.s. |
| Verbal, Task-Related | 55.10 | 23.45 | 13.37 | $<.001$ |
| Verbal, Non-Task-Related | 2.04 | 11.11 | 2.53 | n.s. |
| Physical | 2.04 | 4.93 | | n.s. |
| Supervision: | | | | |
| Verbal, Non-Task-Related | - | 3.70 | | |
| Physical | - | 3.70 | | |
| Play/Instruction | 4.08 | 4.93 | | |
| Response to Child Behavior | - | 3.70 | | |

It can be seen from Table 2 that the greatest portion of attendant-child interaction in Ward 1 consisted of task-related comments and instructions during child care, and that interaction on other occasions was minimal. The attendant-child interaction pattern in Ward 2 showed greater variety. The amount of task-related, non-verbal interaction was about the same for both wards, but the attendants in Ward 2 were more likely to "chat" to the children both in the course of their child-care duties and on other occasions.

There was, therefore, a significant difference in the type and amount of interaction between attendants and children on two wards of the same hospital, even though the children were the same sex and were similar in age and level of handicap.

On the basis of descriptive data gathered in the course of this study, it appeared that three factors may have contributed to the variations found. They were physical layout of the wards, functional level of the residents, and the way in which unit heads performed their roles.

In Ward 1, 14 of the 25 residents were self-feeding, compared to one in Ward 2. Therefore, less staff was required in Ward 1--two senior staff and 4 aides worked the day-shift from 8:00 A.M. till 4:00 P.M.,

supplemented by a volunteer three days a week and a student two days a week. In Ward 2, eight staff members--two senior staff and six aides --were on duty during various times of the day. There were six staff from 8:00 A.M. to 3:00 P.M., eight staff from 12:00 to 3:00 P.M., and four staff from 3:00 P.M. to 8:00 P.M. Disposition of the staff was the responsibility of the unit head. It is unlikely that minor differences between the wards in staff/resident ratios at some times of the day could account for the differences in attendant/child interaction between wards. Differences in functional level of the residents in the two wards may have had a bearing on the amount of interaction received. In Ward 1, it was the impression of the investigator that the 14 self-feeding residents received more attention from aides than the 11 non-self-feeding residents. Since there was only one self-feeding resident in Ward 2, this possible source of variation did not apply.

The non-self-feeding residents in Ward 1 were housed in a separate section from the other Ward 1 residents. In contrast, the residents in Ward 2 were all together in one large dayroom in full view of the ward administrative office for the greater part of the day. The children in Ward 2, therefore, had more opportunities than the children in Ward 1 for interaction with the staff in their comings and goings.

In Ward 1, the unit head and her assistant spent a great proportion of their time in administrative work and nursing care, leaving most of the child-care duties to the junior staff, who worked in pairs. In Ward 2, the unit head and her assistant, in addition to their administrative and nursing duties, joined the junior staff in all child-care duties. All the staff worked as a team. There was also a daily staff meeting at 1:30 P.M. when the full staff complement was present. The meeting was run along democratic lines, with any member of the staff free to offer suggestions or to discuss problems relating to the residents.

Thus, Ward 2 had many of the characteristics of a child-oriented unit (King, Raynes, and Tizard, 1971): greater role diffusion, greater continuity of staffing (the lowest staff-turnover rate in all wards of the institution), higher "effective" staff ratios for different periods of the day, considerable autonomy for the unit head, and greater social

interaction between staff and residents.

The pilot study provided evidence that significant differences are to be found in the social environments available to non-ambulatory, profoundly-retarded, totally dependent children in the same institution. However, in view of other sources of variation in the way of ward layout and differences in functional level of residents in the two wards, a plausible explanation of the reasons for the differences in interaction was not possible.

# CHAPTER IV

## RATIONALE AND HYPOTHESES

This thesis was originally intended as an exploratory study of how attendants respond, verbally and physically, to profoundly-retarded, non-ambulatory children in institutions. It was predicted that this group of children, because of their lack of speech development and severe motor disabilities were, paradoxically, most in need of, and least likely to get, a high level of social interaction with their attendants. This gloomy prognosis was bolstered by research reports that: (1) institutionalized mentally retarded children rated as *low* on physical attractiveness and perceived mental level, received a disproportionately small share of positive and social interaction from attendants (Dailey, Chinsky, and Veit, 1974); and (2) institution-oriented child-care practices are commonly found in living units housing very severely retarded children (McCormick, Balla, and Zigler, 1975).

However, as a result of a pilot study carried out in connection with the previously described project, the possibility was presented that, even when level of handicap remained the same, the extent to which attendants talked to, played with, and were affectionate to the residents could be significantly different from one ward to another in the same institution. In the study, the interaction patterns in the two wards were quite different, even though non-verbal interaction constituted the greatest proportion of total interaction. In one ward, conversation during child care consisted mainly of instructions and short, task-related comments, and there was virtually no attendant-child interaction of any kind during supervision. In the other ward, there was significantly less task-related conversation and more social intercourse. During supervision, considerable differences in interaction were recorded. Attendants tended to speak to the children, play with them, and show affection to them more than was the case in the other ward.

These results posed many other questions: was this a unique situation? Would the same situation be found in another institution

with a larger sample? If the attendants were not responding uniformly to the level of handicap, what were they responding to? Age? Sex? Level of awareness? All the subjects in the pilot study were male, and it was the investigator's impression that female residents in both wards received more attention from the attendants.

Based on the results of the pilot study, the following research was designed to test the hypotheses listed below:

*Hypotheses*

1. There will be significant inter-ward differences in the amount of interaction during supervision between attendants and non-ambulatory profoundly-retarded residents in the same institution.
2. There will be significant inter-ward differences in the type of interaction during child care.
3. Because all members of the child-care staff are female, the interaction rate of attendants and female residents will be higher than that between attendants and male residents.
4. Ward placement will be more predictive of the type and amount of interaction than factors such as age, sex, and level of awareness of residents.
5. In addition to testing the preceding hypotheses, another research objective was to test the hypothesis that the Adaptive Functioning of the Dependent Handicapped scale, which is based on behavioral descriptions deemed appropriate to non-ambulatory, profoundly-retarded children, measures four discrete areas of functioning, viz., Nursing Care, Physical Development, Awareness, and Self Help.

*Definition*

For purposes of this study, a *ward* is defined as a physically discrete administrative unit which, together with the staff who work there and the children who live there, constitutes a relatively permanent physical and social environment.

# CHAPTER V

# METHOD

## Subjects

The institution under study had a population of 92 non-ambulatory profoundly-retarded children and young adults housed in four wards--20 in Ward A, and 24 in each of Wards B, C, and D. With the exception of 15 children, all the children were included in the study. The exceptions were children who were able to feed themselves. The breakdown of the sample by ward and sex was as follows:

| Sex | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Female | 8 | 7 | 10 | 9 |
| Male | 7 | 11 | 13 | 12 |
| | 15 | 18 | 23 | 21 |

With very few exceptions, the children had been transferred from another institution four years previously and had been randomly assigned to the wards.

The 77 subjects were non-ambulatory, incontinent, unable to feed themselves, and had not developed intelligible speech. They suffered from a variety of disabilities, often in combination; 56% were epileptic, 50% spastic, and 26% were blind or had limited vision. Their ages ranged from 7 to 27 years, the average age being 17 years.

Over the six-week observation period the staff-resident ratio in three of the wards was similar, the mode being 9 child-care workers (nurses and aides) to 24 children in Wards B and C, and 8 child-care workers to 20 children in Ward A. Ward D, with a mode of 7 child-care workers to 24 children had the lowest staff-to-children ratio over the period.

The rotation of child-care staff for the four wards and new members of the staff over the observation period were as follows:

| | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Number of different caretakers | 38 | 30 | 28 | 39 |
| New staff | 4 | 3 | 1 | 1 |

Procedure

The precedure used differed in some important respects from that used in the pilot study. Instead of taking observations over the entire day, they were confined to two conditions: child care and supervision. The child-care condition was restricted to mealtime; each child was observed individually while being fed two lunches and three dinners. The supervision condition spanned the period from 1:30 P.M. to 2:30 P.M. Lunchtime ended on all floors by 12:30 P.M. and many children had a sleep after lunch. The time between 1:30 and 2:30 P.M. was a recreation period, and many of the children were taken outdoors to the play area, weather permitting. Each child was observed during supervision on five different days. Observations were done ward by ward in random order. No observations were carried out on weekends.

Each observation interval for both conditions lasted 5 minutes and consisted of ten 15-second observation intervals interspersed with ten 15-second recording intervals. An observation checklist (Appendix A) was drawn up, and any interaction occurring during the 15-second observation interval was ticked off in the relevant category. Only aide-initiated interaction was coded. The categories of interaction were as follows:

| | Non-Verbal | Verbal |
|---|---|---|
| Task-Related | (1) | (2) |
| Non-Task-Related | (4) (5) | (3) |

(1) *Non-verbal, task-related interaction.* Any non-verbal interaction between staff and residents directed to the task of eating in the course of child care.

(2) *Verbal, task-related interaction.* Any verbal directions, reinforcement or attention-seeking related to the task of eating directed by the attendant to the child.

(3) *Verbal, non-task-related interaction.* Any verbal (social rather than task-related) communication directed to the resident by an attendant during feeding or supervision. Some examples of this kind of interaction were: commenting on a child's appearance, enquiring how he was, asking what he was doing, etc.

(4) *Physical interaction (Non-task-related, non-verbal).* Any physical contact between staff and residents when it was not required for the task at hand. This would apply, for example, when an attendant held a child on her lap or in her arms; or when physical affection was shown to the child by patting, stroking, or hugging him, or by ruffling his hair.

(5) *Play/Instruction interaction (Non-task-related, non-verbal).* Occasions when an attendant or other adult was engaged in helping a resident to acquire or practise a skill, to play a game, or to take part in recreational pursuits.

Other data recorded were the identity of the interactor (nurse, aide, domestic), the number and type of staff present, and the placement of the child, e.g., whether he was in bed, in a wheelchair in the corridor, on the floor, outside, etc.

The observations took place over a period of six consecutive weeks and covered a little more than 64 hours. Each child was observed for a total of 50 15-second intervals during child care and 50 15-second intervals during supervision. There were four categories of interaction coded during child care: non-verbal, task-related; verbal task-related; verbal, non-task-related; and physical. Three categories of interaction were coded during supervision: verbal, non-task-related; physical; and play/instruction.

The number of interactions in each category was totalled for each individual, and then for each ward. The mean number of observation intervals during which interaction occurred in each category was compared by ward and sex using a two-way analysis of variance (Anov 25).

The participation of senior staff in interactions with the children for each ward and in each category was computed as a percentage of the total interactions.

The placement of children during supervision time was computed as a percentage of total supervision time, by ward and location. During the child-care condition, virtually all the children were fed in their beds.

Adaptive Functioning of the Dependent Handicapped

In order to control for inter-ward variations in resident characteristics, a two-way analysis of variance by ward and sex was carried out on the ratings of the children in the sample on the Adaptive Functioning of the Dependent Handicapped (A.F.D.H.) scale (Marlett, et al., 1974). Inter-rater reliability for the scale was .83 for the full-scale score when calculated for a hospital population of profoundly-retarded residents. Reliability measures for the sub-scales were .74 for *Physical Development*, .79 for *Awareness*, and .87 for *Self Help*. The A.F.D.H. has been used to assess individual children and adults and as a guide for dividing profoundly-retarded children and adults into training groups. The scale measures 75 skills or targets in three areas--*Physical Development* (motor skills), *Awareness*, and *Self Help*. Using a 3-point scale for each skill measured, the maximum score in each area is 50. The fourth area measured by the scale is *Nursing Care*, which covers medications required, tonicity of the body, medical care necessary, observation for injury, and feeding difficulties arising from physical disability. Unlike the three other areas where a high score is indicative of a higher level of development, a high score in *Nursing Care* denotes a reduced ability for self-help.

All the children in the institution had been rated on the A.F.D.H. by the supervisory personnel just prior to the beginning of the study (April, 1976). A factor analysis of the Adaptive Functioning of the Dependent Handicapped scale (Appendix B) was undertaken as part of this thesis.

In addition, intercorrelations were obtained for scores on the four areas of the A.F.D.H., the ages of the children and their individual interaction measures. This was done to determine whether the amount of interaction received had a relationship with the age of the child, his physical development, level of awareness, self-help skills, or the level of nursing care required.

# CHAPTER VI

# RESULTS

## Interaction during Child Care

Significant differences were found between wards in the type of interaction which took place between attendants and children during child care. Since observations in this category were made when children were being fed individually, interaction was continuous and was recorded in each of the 50 observation intervals. The type of interaction, however, varied from child to child. There were no significant differences in any of the interaction categories during child care which would indicate that differences in interaction were based on the sex of the resident.

### (1) Non-Verbal, Task-Related Interaction

Table 3 shows that there was significantly more non-verbal, task-related interaction recorded in Ward A than in Ward B ($p < .006$).

Table 3

Non-Verbal Task-Related Interaction during Child Care

Two-Way Analysis of Variance - by Ward and Sex

| Source | *SS* | *df* | MS | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 29.250 | 1 | 29.250 | 0.698 | 0.406 |
| Ward | 582.250 | 3 | 294.083 | 4.636 | 0.005 |
| Ward x Sex | 90.687 | 3 | 30.229 | 0.722 | 0.542 |
| Error | 2888.060 | 69 | 41.856 | | |

| Scheffé Comparison | *p* |
|---|---|
| Wards A and B | <0.006 |

Figure 1 shows the percentage of observation intervals during child care in which non-verbal, task-related interaction occurred for each ward, sexes separated. Based on 50 observations per child during child care, the average male in Ward A was fed in silence over 87 per cent of the observation time. The comparable figure for female

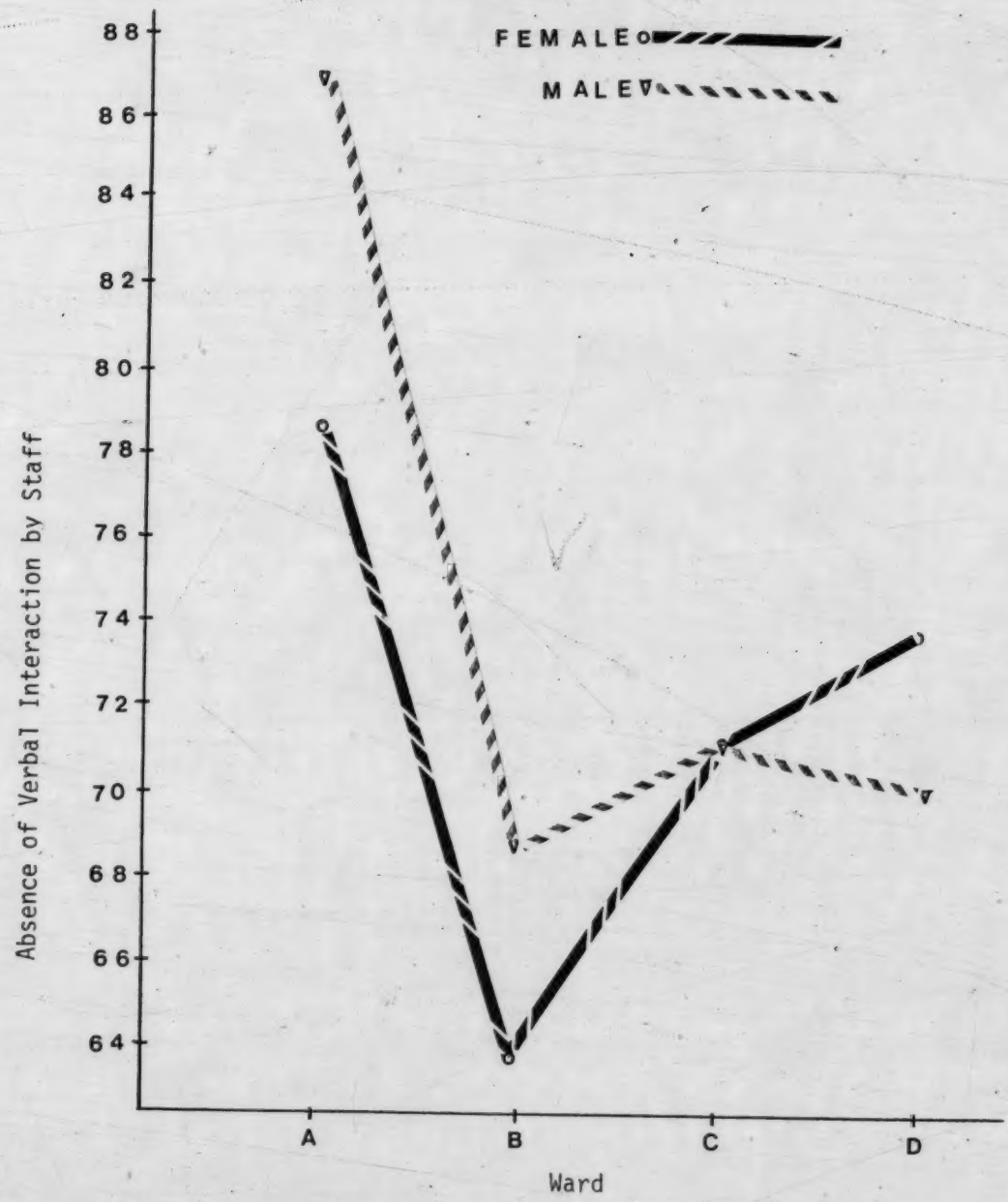



Figure 1: *Non-Verbal Task-Related Interaction - Percentage of Observation Intervals during Child Care.*

| | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Females | 78.74 | 63.74 | 71.40 | 73.76 |
| Males | 87.14 | 68.72 | 71.52 | 70.32 |

residents in Ward A was over 78 per cent. Ward B male residents were fed in silence during 68 per cent of the observations, while the comparable figure for female residents was 63 per cent.

(2) Verbal, Task-Related Interaction

Table 4 shows that the difference in verbal, task-related interaction between wards was significant at the $p < .002$ level, and was greatest between Wards A and B, and between Wards A and D.

Table 4

Verbal, Task-Related Interaction during Child Care

Two-Way Analysis of Variance - By Ward and Sex

| Source | *SS* | *df* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 1.406 | 1 | 1.406 | 0.091 | 0.763 |
| Ward | 244.650 | 3 | 81.488 | 5.287 | 0.002 |
| Ward x Sex | 10.117 | 3 | 3.372 | 0.218 | 0.883 |
| Error | 1063.460 | 69 | 15.412 | | |

| Scheffé Comparison | *p* |
|---|---|
| Wards A and B | $< 0.010$ |
| Wards A and D | $< 0.011$ |

Figure 2 shows the percentage of observation intervals during which verbal task-related interaction occurred for each ward, sexes separated. Ward B had the highest incidence of this type of interaction for both sexes. Attendants spoke to both males and females on average 20 per cent of the observation time. Ward D had a similar incidence of verbal, task-related interaction. In contrast, attendants in Ward A spoke to female residents on task-related matters 12 per cent and to male residents 8 per cent of the observations during child care.

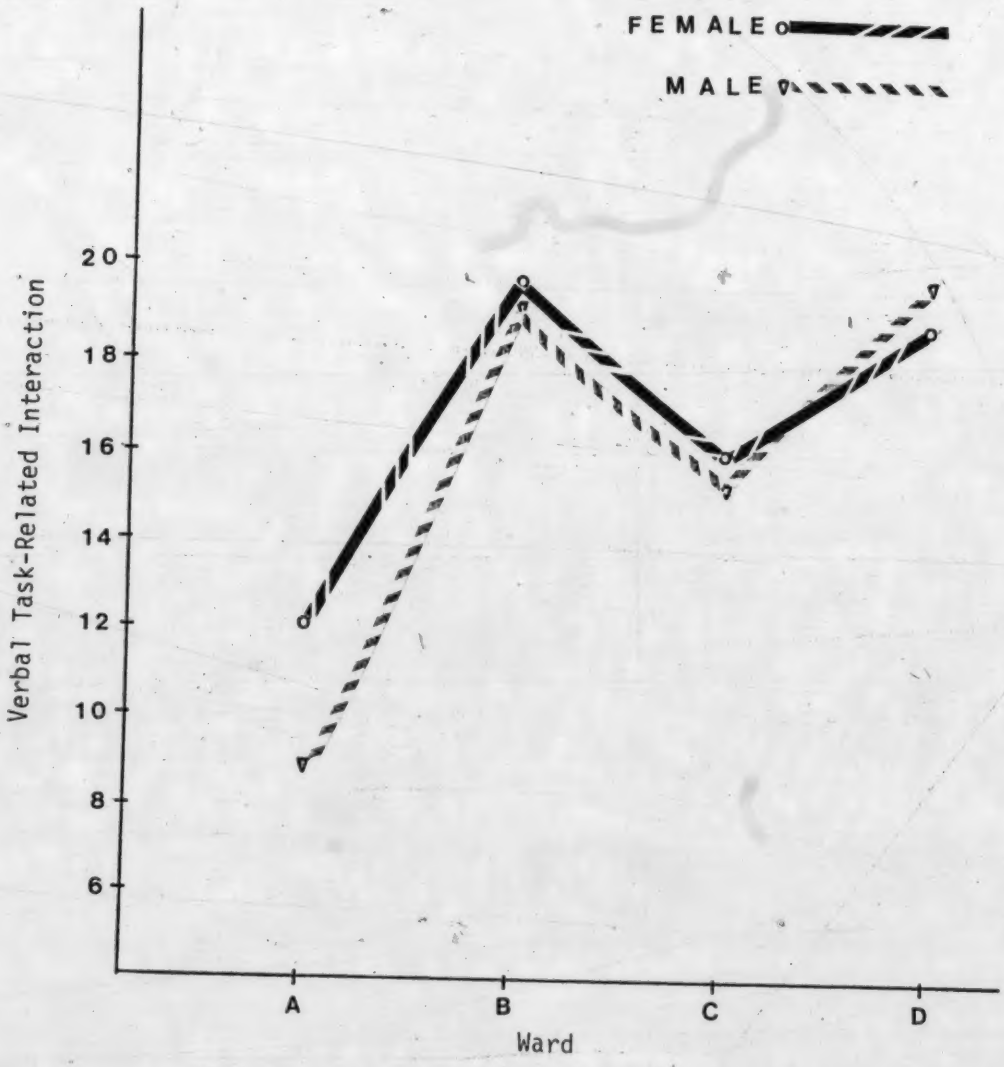



Figure 2: *Verbal, Task-Related Interaction - Percentage of Observation Intervals during Child Care.*

| | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Females | 12.00 | 20.00 | 16.00 | 19.10 |
| Males | 8.84 | 20.18 | 15.36 | 20.16 |

(3) Verbal, Non-Task-Related Interaction

Differences between wards in the amount of verbal, non-task-related interaction between attendants and residents during child care approached but did not reach significance ($p < .059$).

Table 5

Verbal, Non-Task-Related Interaction during Child Care

Two-Way Analysis of Variance - By Ward and Sex

| Source | *SS* | *df* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 17.813 | 1 | 17.813 | 0.915 | 0.342 |
| Ward | 151.284 | 3 | 50.428 | 2.590 | 0.059 |
| Ward x Sex | 51.104 | 3 | 17.034 | 0.875 | 0.458 |
| Error | 1343.110 | 69 | 19.465 | | |

Table 6 shows the percentage of observation intervals during which verbal, non-task-related interaction occurred for each ward, sexes separated. Wards B and C had the highest incidence of this type of interaction, while Wards A and D had the lowest frequency. Attendants were most likely to chat with girls in Ward B, and least likely to chat with boys in Ward A.

Table 6

Verbal, Non-Task-Related Interaction during Child Care

Percentage of Observation Intervals - By Ward and Sex

| | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Females | 9.24 | 16.28 | 12.60 | 7.10 |
| Males | 4.00 | 11.10 | 12.76 | 9.50 |

(4) Physical Interaction

Table 7 shows there were no differences, either on the basis of sex or ward, in the amount of physical interaction which occurred during child care.

Table 7

Physical Interaction during Child Care

Two-Way Analysis of Variance - By Ward and Sex

| Source | *SS* | *df* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 1.956 | 1 | 1.956 | 0.180 | 0.672 |
| Ward | 37.850 | 3 | 12.616 | 1.162 | 0.330 |
| Ward x Sex | 70.694 | 3 | 23.564 | 2.170 | 0.099 |
| Error | 749.071 | 69 | 10.856 | | |

Table 8 shows the percentage of observation intervals during which physical interaction occurred during child care, for each ward with sexes separated. This type of interaction was coded in addition to any of the other three types of interaction which occurred. There was a very low incidence of physical interaction during child care over all wards. Ward A had the highest percentage of this type of interaction during Child Care for both males and females.

Table 8

Physical Interaction during Child Care

Percentage of Observation Intervals - By Ward and Sex

| | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Females | 7.50 | 0.56 | 1.00 | 1.32 |
| Males | 8.56 | 5.80 | 0.60 | 0.50 |

Interaction during Supervision

Significant differences emerged between wards and between sexes in the amount of interaction observed between attendants and children during supervision. For all wards, the average incidence of interaction of any kind was very low for both sexes, ranging from 2 per cent of the observations at the high end of the scale down to zero interaction at the other end of the scale. As was the case for the child care observations, physical interaction during supervision was coded in addition to any other interaction taking place.

(1) Verbal, Non-Task-Related Interaction

Table 9 shows that there was a significant difference between sexes ($p < .03$) in the amount of verbal, non-task-related interaction during supervision. The attendants spoke to girls during supervision more than they did to boys. There were no differences between the wards on this variable.

Table 9

Verbal, Non-Task-Related Interaction during Supervision

Two-Way Analysis of Variance - By Ward and Sex

| Source | *SS* | *df* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 22.732 | 1 | 22.732 | 4.841 | 0.031 |
| Ward | 270.357 | 3 | 9.011 | 1.919 | 0.134 |
| Ward x Sex | 21.321 | 3 | 7.107 | 1.513 | 0.218 |
| Error | 323.985 | 69 | 4.695 | | |

Figure 3 shows the percentage of observation intervals during supervision when verbal, non-task-related interaction occurred.

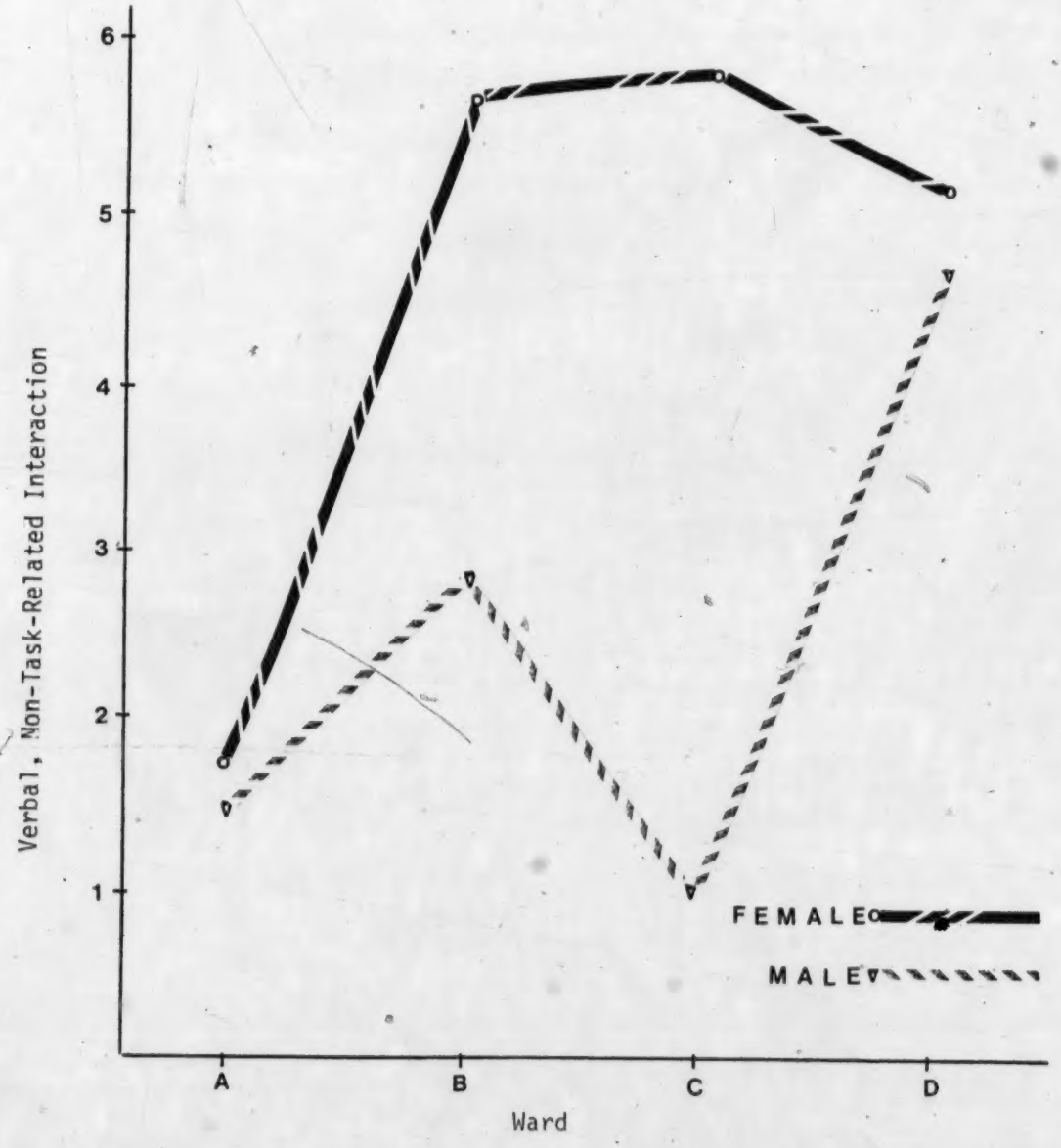



Figure 3: *Verbal, Non-Task-Related Interaction - Percentage of Observations during Supervision.*

| | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Females | 1.75 | 5.72 | 5.80 | 5.12 |
| Males | 1.43 | 2.90 | 0.46 | 4.66 |

(2) Physical Interaction

As can be seen from Table 10, no significant ward or sex differences emerged with regard to the incidence of physical interaction between attendants and children during supervision. The difference in the amount of interaction between attendants and female residents and attendants and male residents approached ($p < .06$) but did not reach significance.

Table 10
Physical Interaction during Supervision
Two-Way Analysis of Variance - By Ward and Sex

| Source | *SS* | *df* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 67.633 | 1 | 67.633 | 3.558 | 0.063 |
| Ward | 635.261 | 3 | 21.175 | 1.114 | 0.349 |
| Ward x Sex | 103.581 | 3 | 34.526 | 1.816 | 0.152 |
| Error | 1311.400 | 69 | 19.005 | | |

Table 11 shows the percentage of observation intervals during which physical interaction occurred between attendants and residents in each of the four wards during supervision.

Table 11
Physical Interaction during Supervision
Percentage of Observation Intervals - By Ward and Sex

| | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Females | 0.79 | 5.42 | 11.40 | 10.22 |
| Males | 2.86 | 4.90 | 2.00 | 2.66 |

(3) Play/Instruction Interaction

Table 12 shows there were significant differences between the wards in play/instruction interaction during supervision. The attendants in Ward D engaged in play and instruction interaction with the children in their ward significantly more than was the case for the attendants and children in Wards A and C. Furthermore, there was an interaction

effect; such that males in Ward D engaged in play and instruction with their attendants significantly more than was the case for males in the other three wards ($p < .04$).

Table 12

Play/Instruction Interaction during Supervision
Two-Way Analysis of Variance - By Ward and Sex

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Sex | 3.904 | 1 | 3.904 | 0.289 | 0.592 |
| Ward | 213.794 | 3 | 71.264 | 5.283 | 0.002 |
| Ward x Sex | 117.323 | 3 | 39.107 | 2.899 | 0.041 |
| Error | 930.669 | 69 | 13.488 | | |

| Scheffé Comparison | p |
|---|---|
| Wards D and A | < 0.005 |
| Wards D and C | < 0.035 |

Figure 4 shows the percentage of observation intervals for each ward during which play/instruction interaction occurred. No activity of this kind was observed for males in Wards A and C. For females, the incidence of play/instruction interaction was similar in three wards, with Ward A having the lowest incidence (0.2 per cent). Attendants in Wards B and D engaged in this type of interaction with male residents to a greater degree than was the case for female residents in any ward. However, because there was zero interaction in this category in two wards and a very high incidence in one ward, no significant differences emerged based on sex alone.

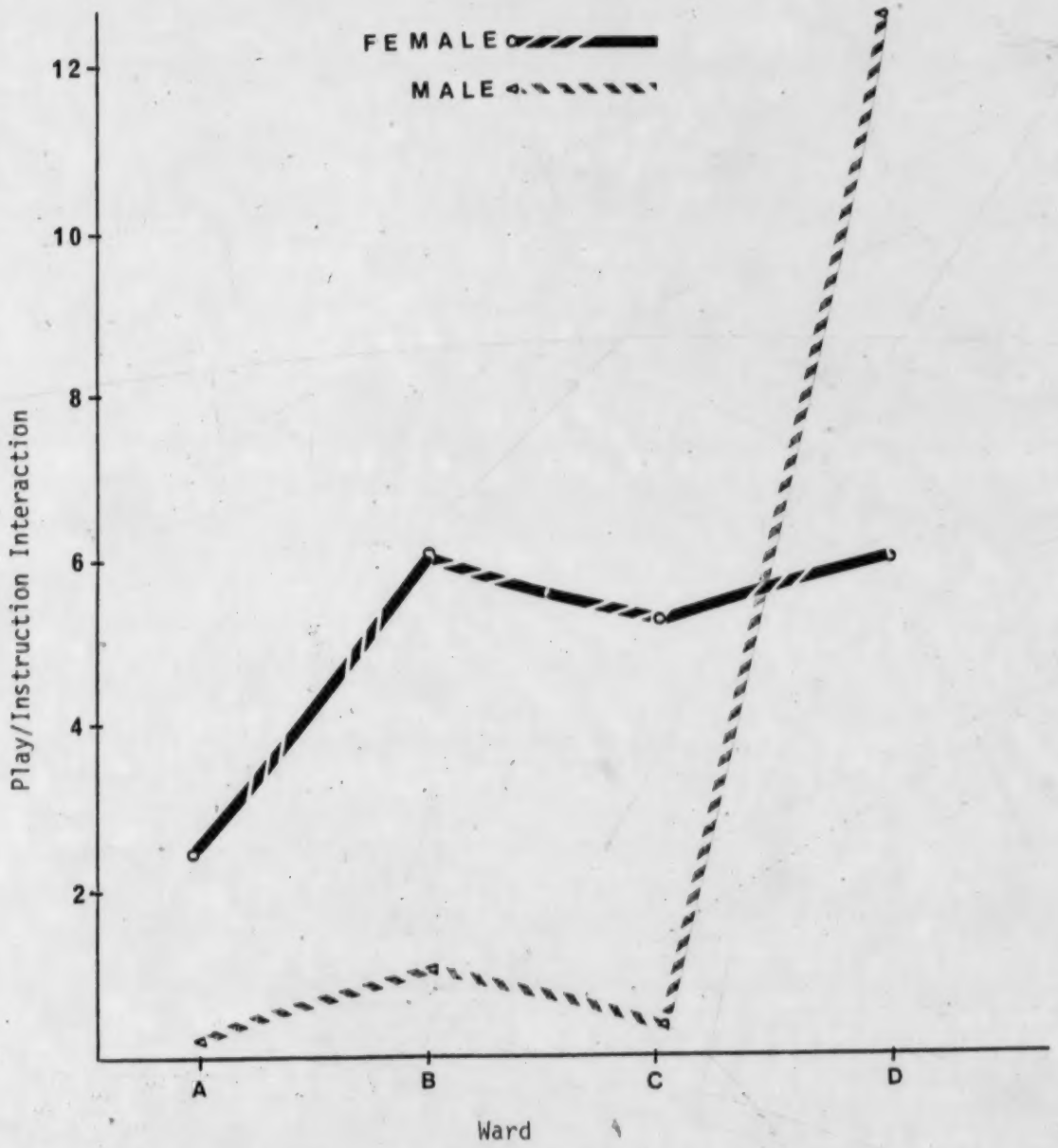



Figure 4: *Play/Instruction Interaction - Percentage of Observation Intervals during Supervision.*

| | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Females | 2.50 | 6.00 | 5.20 | 6.00 |
| Males | Nil | 1.10 | Nil | 12.66 |

## Composite Comparison of Interaction Variables

Table 13 is a composite picture of interaction variables showing areas where significant differences were found and the level of significance of the differences. Out of the seven interaction variables in the two conditions, four variables showed significant variation--three on the basis of ward placement and one on the basis of sex.

Table 13
Comparison of Interaction Variables

| | Supervision | | | Child Care | | | |
|---|---|---|---|---|---|---|---|
| Source | VNTR | PHYS. | PLAY | NVTR | VTR | VNTR | PHYS. |
| Sex | $p<.03$ | n.s. | n.s. | n.s. | n.s. | n.s. | n.s. |
| Ward | n.s. | n.s. | $p<.002$ | $p<.005$ | $p<.002$ | n.s. | n.s. |
| Interaction | n.s. | n.s. | $p<.04$ | n.s. | n.s. | n.s. | n.s. |

## Social Interaction

One of the objectives of this study was to investigate the amount of social interaction which occurred between attendants and residents. In order to arrive at some meaningful measure, three of the interaction variables were combined to arrive at the average percentage of total observation time (supervision and child care combined) during which attendants and children were engaged in play and in conversation (verbal, non-task-related interaction under both conditions). Table 14 gives these percentages by ward and sex.

Table 14
Social Interaction between Attendants and Residents
As a Percentage of Total Observation Time - By Ward

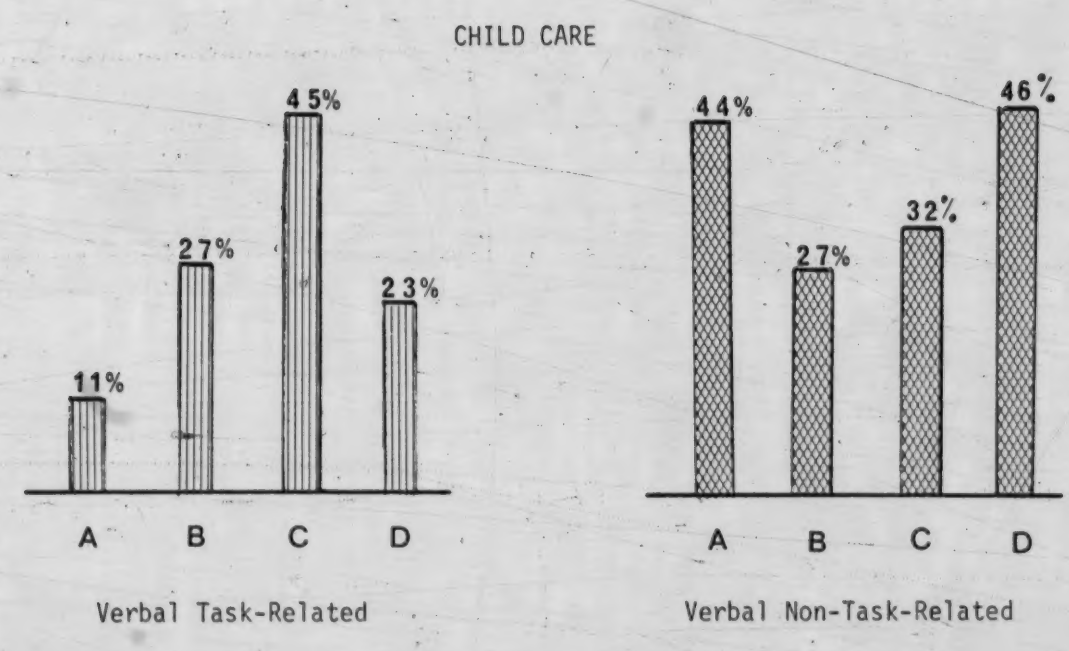
| | Ward A | Ward B | Ward C | Ward D |
|---|---|---|---|---|
| Female Residents | 8% | 14% | 10% | 9% |
| Male Residents | 3% | 7.5% | 6.5% | 13% |

Variations in research design make it difficult to determine how these interaction rates compare with those in other institutions and for residents who are less handicapped than the subjects in this study. The *average resident* in the Dailey, Chinsky, and Veit (1974) study of ambulatory, retarded children (mean IQ 23), was reported to *be engaged in either a positive or social-play interaction in fewer than 1 per cent of the intervals for which he was observed* (p. 590). This is a lower percentage than was found in this study for the group with the least social interaction with their attendants, namely males in Ward A. When wards and sexes are not separated, the average resident in the institution under study was engaged in social-play interaction with attendants in over 8 per cent of the time for which he was observed.

Participation of Senior Staff in Interaction

Figure 5 shows the participation of senior staff in interaction with the residents during Child Care and Supervision. It can be seen that senior staff accounted for a large proportion of the verbal interaction in all wards. There was significantly more verbal task-related interaction in Wards B and D compared with Ward A (see Table 4). Low participation by senior staff in Ward A may have accounted for part of this difference. It is interesting to note that in Ward B, the degree of participation of senior staff is in proportion to their number since they comprise a quarter of the staff.

Interaction during Supervision was low for all wards, and participation by senior staff was also low except for Ward B, where senior staff were responsible for 26 per cent of the verbal and play interaction and 8 per cent of the physical interaction.



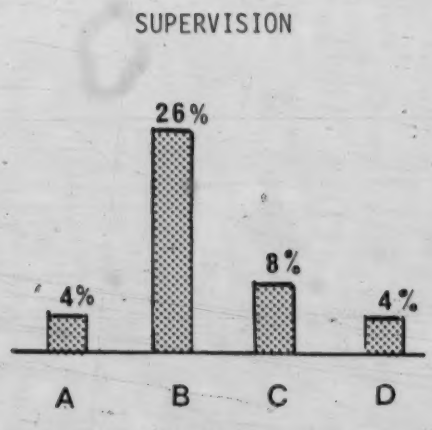




Figure 5: Participation by Senior Staff in Verbal Interaction during Child Care, and in Verbal Interaction and Play/Instruction during Supervision - By Ward.

Scores of Residents on A.F.D.H. Scale

Because of their lack of speech and their physical disabilities stemming from varying degrees of sensory and motor impairment, the children could not be compared in this study by means of any conventional measure of competence such as an IQ test. However, recent scores on the A.F.D.H. were available for all residents, and these scores were analyzed to account for any significant differences in the level of functioning of the residents from one ward to another.

Table 15 shows that Ward C residents required significantly less nursing care than residents in any of the other three wards. There were no differences on the basis of sex.

Table 15

Scores in Nursing Care Category of A.F.D.H.

Two-Way Analysis of Variance - By Ward and Sex

| Source | *SS* | *df* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 0.96 | 1 | 0.96 | 0.04 | 0.83 |
| Ward | 939.09 | 3 | 313.03 | 14.26 | 0.000001 |
| Ward x Sex | 116.81 | 3 | 38.93 | 1.77 | 0.16 |
| Error | 1514.67 | 69 | 21.95 | | |

| Scheffé Comparison | *p* |
|---|---|
| Wards C and A | < 0.000006 |
| Wards C and B | < 0.012 |
| Wards C and D | < 0.00003 |

Table 16 shows the means and standard deviations of scores by ward and sex. Males in Ward A had the greatest variability in scores. A check of the items in this category revealed that item 2, Body, and item 5, Feeding, accounted for high scores in *Nursing Care* for some of the males in Ward A. Females in Ward A had uniformly high scores in this category, but the scores were not significantly different from the scores of females in Ward D. Both males and females in Ward C had low scores.

Table 16

Scores in Nursing Care Category of A.F.D.H.

Means and Standard Deviations - By Ward and Sex

| | Ward A | | Ward B | | Ward C | | Ward D | |
|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Females | 27.50 | 2.33 | 24.57 | 3.29 | 17.10 | 4.15 | 27.66 | 4.58 |
| Males | 28.00 | 9.17 | 22.90 | 2.66 | 20.38 | 4.75 | 24.91 | 4.70 |

In the *Physical Development* category, Table 17 shows that there was a significant difference ($p < .04$) between Wards A and C. There were no significant differences in scores on the basis of sex.

Table 17

Scores in Physical Development Category of A.F.D.H.

Two-Way Analysis of Variance - By Ward and Sex

| Source | *SS* | *df* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 131.27 | 1 | 131.27 | 1.11 | 0.29 |
| Ward | 1049.82 | 3 | 349.94 | 2.97 | 0.03 |
| Ward x Sex | 80.44 | 3 | 26.81 | 0.22 | 0.87 |
| Error | 8107.09 | 69 | 117.49 | | |

| Scheffé Comparison | *p* |
|---|---|
| Wards A and C | $< 0.046$ |

From Table 18, it can be seen that both males and females in Ward A had low scores in this category of the A.F.D.H. In Ward C, however, the average male and female resident had higher scores than the highest score in Ward A for both males and females. The range of mobility of Ward B and D residents was lower on the average than that of Ward C residents but not significantly so.

Table 18

Scores in Physical Development Category of A.F.D.H.

Means and Standard Deviations - By Ward and Sex

| | Ward A | | Ward B | | Ward C | | Ward D | |
|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Females | 6.50 | 7.44 | 15.85 | 10.06 | 19.10 | 12.86 | 14.33 | 8.46 |
| Males | 10.71 | 8.92 | 17.45 | 10.69 | 19.07 | 12.46 | 19.25 | 11.94 |

Table 19 shows that differences in average scores in the *Awareness* category of the A.F.D.H. were significant at the 0.01 level between Wards B and C.

Table 19

Scores in Awareness Category of A.F.D.H.

Two-Way Analysis of Variance - By Ward and Sex

| Source | *SS* | *df* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 1.55 | 1 | 1.55 | 0.02 | 0.87 |
| Ward | 710.88 | 3 | 236.69 | 3.87 | 0.01 |
| Ward x Sex | 271.32 | 3 | 90.44 | 1.47 | 0.22 |
| Error | 4221.07 | 69 | 61.175 | | |

| Scheffé Comparison | *p* |
|---|---|
| Wards C and B | <0.029 |

Table 20 shows the average scores in the *Awareness* category by ward and sex. Ward B males were the lowest in this category with little variability. Ward D females were also uniformly low. Ward A females had the greatest variability. Both males and females in Ward C had high scores in this category.

Table 20

Scores in Awareness Category of A.F.D.H.

Means and Standard Deviations - By Ward and Sex

| | Ward A | | Ward B | | Ward C | | Ward D | |
|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Females | 11.00 | 11.56 | 11.28 | 8.56 | 18.10 | 8.12 | 8.44 | 4.72 |
| Males | 11.14 | 9.56 | 7.81 | 5.09 | 16.38 | 7.42 | 14.75 | 7.41 |

Table 21 shows that the differences in scores between wards in the *Self Help* category of the A.F.D.H. reached a significance level of 0.000001; Ward C residents had much higher scores in this category than residents in the other three wards. There were no differences on the basis of sex.

Table 21

Scores in Self Help Category of A.F.D.H.

Two-Way Analysis of Variance - By Ward and Sex

| Source | *SS* | *df* | MS | *F* | *p* |
|---|---|---|---|---|---|
| Sex | 3.71 | 1 | 3.71 | 0.45 | 0.50 |
| Ward | 369.86 | 3 | 123.28 | 15.06 | 0.000001 |
| Ward x Sex | 13.15 | 3 | 4.38 | 0.53 | 0.65 |
| Error | 564.64 | 69 | 8.18 | | |

| Scheffe Comparison | *p* |
|---|---|
| Wards C and A | $<0.000002$ |
| Wards C and B | $<0.00014$ |
| Wards C and D | $<0.02$ |

Table 22 shows the average score of residents in each ward on the *Self Help* category of the A.F.D.H. Ward C males and females had similar scores in this category. Ward A residents, both males and females, had very low scores.

Table 22

Scores in Self Help Category of A.F.D.H.

Means and Standard Deviations - By Ward and Sex

| | Ward A | | Ward B | | Ward C | | Ward D | |
|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Females | 4.00 | 2.88 | 6.00 | 2.24 | 10.90 | 3.38 | 7.11 | 2.67 |
| Males | 5.14 | 3.24 | 6.18 | 3.97 | 10.15 | 2.34 | 8.33 | 1.67 |

Factor Analysis of A.F.D.H. Scale

The hypothesis that the Adaptive Functioning of the Dependent Handicapped scale measures four discrete areas of functioning was investigated by conducting a principal components factor analysis, followed by a varimax rotation, on the scores of the 77 subjects in this study after they had been tested by the institution staff in April, 1976. Scores covered 20 items, five in each of the four categories of *Nursing Care*, *Physical Development*, *Awareness* and *Self Help*.

Three orthogonal factors were obtained, accounting for 35.5, 30.6, and 24 per cent of the total variance, respectively. The loading for each item on each factor is presented in Table 23.

Table 23

Rotated Factor Loadings of the AFDH Items

| | Factor | | |
|---|---|---|---|
| Item | 1 | 2 | 3 |
| 1 | -0.095 | -0.021 | 0.960 |
| 2 | -0.108 | 0.911 | 0.002 |
| 3 | 0.466 | 0.554 | 0.643 |
| 4 | 0.525 | 0.769 | 0.057 |
| 5 | 0.334 | 0.307 | 0.825 |
| 6 | 0.900 | -0.107 | 0.264 |
| 7 | 0.135 | 0.885 | 0.182 |
| 8 | 0.803 | 0.515 | 0.040 |
| 9 | 0.163 | 0.886 | 0.103 |
| 10 | 0.788 | 0.589 | 0.105 |
| 11 | 0.420 | 0.401 | 0.698 |
| 12 | 0.211 | 0.616 | 0.689 |
| 13 | 0.457 | 0.429 | 0.728 |
| 14 | 0.607 | 0.666 | 0.370 |
| 15 | 0.940 | 0.212 | 0.048 |
| 16 | 0.876 | -0.082 | 0.336 |
| 17 | 0.513 | 0.831 | 0.146 |
| 18 | -0.071 | -0.198 | 0.923 |
| 19 | 0.900 | 0.263 | 0.010 |
| 20 | 0.909 | 0.306 | 0.082 |

Factor 1 is associated with movement and may be measuring general mobility and gross motor co-ordination. It had high positive loadings on three items of *Physical Development* (Head .90, Body .80 and Movement .78), three items of *Self Help* (Feeding .87, Toileting .90 and Dressing .90) and one item in *Awareness* (Contact with Things .94).

Factor 2 had a high loading on those items which measure eye-hand co-ordination, grasping and releasing, and fine motor co-ordination. *Self Help* Eating (.83), and Legs (.88) and Hands (.88) in *Physical Development* have high loadings on this factor. Observation for Injury in *Nursing Care* also loads on Factor 2 (.76). The highest loading is on Body in *Nursing Care* (.91). This loading is difficult to interpret, inasmuch as a high score on this item could indicate either extreme rigidity or extreme flaccidity of the body. Unless, of course, such a condition could be considered as a case of total co-ordination'

Factor 3 seems to be measuring a response factor. The highest loadings on this factor are on Medication (.96), Washing (.92) and Feeding (.82). At first glance, these items seem to have little in common, but upon closer investigation it can be seen that the items are all related to a visible body response. Three items in the Medications sub-section of *Nursing Care* (seizure medication, tranquillizers, congestion medication) deal with physical response, and Washing in *Self Help* describe a child's response to the experience of being bathed. Three items in the *Awareness* category (Contact with People .72, Eye Contact .69 and Contact with His World .68) also load on this factor. Many of the items in these categories are measuring a child's response to his environment by eye movement, facial expression, and body movement.

The results of the factor analysis suggest that the Adaptive Functioning of the Dependent Handicapped scale is measuring three discrete areas of functioning. One area is gross motor co-ordination, which accounts for the majority of the items in the *Physical Development* and *Self Help* categories. The second area of functioning has to do with purposeful, directed movement involving fine motor co-ordination; two items from each of *Physical Development*, *Nursing Care*, and *Awareness* come into this category, as well as one item from *Self Help*. The third area is responsivity. The majority of items in *Nursing Care* and *Awareness* seem to fit into this category.

Correlations

1. Ward A

Table 24 shows the intercorrelation of interaction variables during Supervision and Child Care for the residents in Ward A. The most common form of interaction during Supervision in this ward seemed to be a combination of talking, play, and affection (as measured by Physical interaction). The frequency of play and affection interaction shown during Supervision correlated highly with physical affection during Child Care, suggesting that the children who were treated affectionately while being fed were the ones who received the most attention during Supervision. As expected, the verbal and non-verbal variables showed a high negative correlation, inasmuch as any increase in the time spent in verbal interaction would result in less time being spent in non-verbal interaction over the observation periods.

Table 24

Correlation Matrix for Interaction Variables

Supervision and Child Care - Ward A (N=15)

| | Supervision | | | Child Care | | | |
|---|---|---|---|---|---|---|---|
| | VNTR | Phys. | Play | NVTR | VTR | VNTR | Phys. |
| Verbal Non-Task Related | n.s. | 0.85*** | n.s. | n.s. | n.s. | 0.71** | |
| Physical | | n.s. | n.s. | n.s. | n.s. | n.s. | |
| Play/Instruction | | | n.s. | n.s. | n.s. | 0.88*** | |
| Non-Verbal Task-Related | | | | -0.76*** | -0.89*** | n.s. | |
| Verbal Task-Related | | | | | n.s. | n.s. | |
| Physical | | | | | | | |

*** $p < .001$
** $p < .01$

Table 25 shows the intercorrelation of interaction variables with scores on the Adaptive Functioning of the Dependent Handicapped scale for Ward A residents. The correlation of age with these variables is also shown for this ward only; there was no significant correlation of age of residents with any other variables for the other three wards.

Attendants tended to spend more time during Supervision playing with children who were younger and more responsive than the average ward

A resident. Physical affection was shown more often to more mobile children and to younger children during meal-time. The attendants were most likely to talk to those residents who had high scores in the *Self-Help* category of the A.F.D.H.

Table 25

Intercorrelation of Interaction Variables and A.F.D.H. Scores
Supervision and Child Care - Ward A (N=15)

| | Age | Nursing Care | Physical Development | Aware-ness | Self Help |
|---|---|---|---|---|---|
| Supervision | | | | | |
| Verbal Non-Task-Related | n.s. | n.s. | n.s. | n.s. | n.s. |
| Physical | n.s. | n.s. | -0.52* | n.s. | n.s. |
| Play/Instruction | -0.51* | n.s. | n.s. | 0.54* | n.s. |
| Child Care | | | | | |
| Non-Verbal Task-Related | n.s. | n.s. | n.s. | n.s. | n.s. |
| Verbal Task-Related | n.s. | n.s. | n.s. | n.s. | 0.60** |
| Verbal Non-Task-Related | n.s. | n.s. | n.s. | n.s. | n.s. |
| Physical | -0.63** | n.s. | n.s. | n.s. | n.s. |

** $p < .01$

* $p < .05$

2. Ward B

Interaction during Supervision in Ward B conformed to the pattern for Ward A, in that talking, physical interaction, and play/instruction tended to go together as shown in Table 26.

Table 26
Correlation Matrix for Interaction Variables
Supervision and Child Care - Ward B

| | Supervision | | | Child Care | | | |
|---|---|---|---|---|---|---|---|
| | VNTR | Phys. | Play | NVTR | VTR | VNTR | Phys. |
| Verbal Non-Task-Related | | 0.64** | 0.61** | n.s. | n.s. | n.s. | n.s. |
| Physical | | | 0.64** | n.s. | n.s. | n.s. | n.s. |
| Play/Instruction | | | | n.s. | n.s. | n.s. | n.s. |
| Non-Verbal Task-Related | | | | | -0.66** | -0.88*** | n.s. |
| Verbal Task-Related | | | | | | n.s. | n.s. |
| Verbal Non-Task-Related Physical | | | | | | | n.s. |

*** $p < .001$
** $p < .01$

Table 27 shows the intercorrelation of interaction variables with scores on the Adaptive Functioning of the Dependent Handicapped scale for ard B residents. During both Supervision and Child Care in this ward high scores in *Physical Development* were associated with a higher percentage of physical interaction. However, functional level had no relationship with the amount of play and verbal interaction a resident received during Supervision. Percentage of physical interaction during Supervision was lower for residents who had high scores in the *Nursing Care* category of the A.F.D.H. During Child Care, attendants tended to chat with the more responsive residents; and, in any event, the more responsive residents were not likely to be fed in silence.

Table 27
Intercorrelation of Interaction Variables and A.F.D.H. Scores
Supervision and Child Care - Ward B (N=18)

| | Nursing Care | Physical Development | Aware-ness | Self Help |
|---|---|---|---|---|
| Supervision | | | | |
| Verbal Non-Task-Related | n.s. | n.s. | n.s. | n.s. |
| Physical | -0.52* | 0.58** | n.s. | n.s. |
| Play/Instruction | n.s. | n.s. | n.s. | n.s. |
| Child Care | | | | |
| Non-Verbal Task-Related | n.s. | n.s. | -0.70*** | n.s. |
| Verbal Task-Related | n.s. | n.s. | n.s. | n.s. |
| Verbal Non-Task-Related | n.s. | n.s. | 0.78*** | n.s. |
| Physical | n.s. | 0.55** | n.s. | n.s. |

*** $p < .001$
** $p < .01$
* $p < .05$

3. Ward C

Table 28 shows the intercorrelation of interaction variables during Supervision and Child Care for the residents in Ward C. As was the case in Ward A, there was a relationship between the physical interaction variable in Child Care and a Supervision variable--in this case, verbal, non-task-related interaction. This could be interpreted to mean that the residents who received physical affection from the attendants during mealtime were the ones whom the attendants tended to talk to during Supervision and during mealtime as well.

Table 28

Correlation Matrix for Interaction Variables

Supervision and Child Care - Ward C (N = 23)

| | Supervision | | | Child Care | | | |
|---|---|---|---|---|---|---|---|
| | VNTR | Phys. | Play | NVTR | VTR | VNTR | Phys. |
| Verbal Non-Task-Related | n.s. | n.s. | n.s. | n.s. | n.s. | n.s. | 0.44* |
| Physical | | 0.57** | n.s. | n.s. | n.s. | n.s. | n.s. |
| Play/Instruction | | | n.s. | n.s. | n.s. | n.s. | n.s. |
| Non-Verbal Task-Related | | | | -0.84*** | -0.61** | n.s. | |
| Verbal Task-Related | | | | | | n.s. | 0.48* |
| Verbal Non-Task-Related | | | | | | | n.s. |
| Physical | | | | | | | |

*** $p < .001$
** $p < .01$
* $p < .05$

As shown in Table 29, the only interaction variable which correlated significantly with functional level in Ward C was Play/Instruction interaction during Supervision. There is a relationship between the amount of time attendants spent playing with residents and the level of awareness of the residents, as measured by the A.F.D.H.

Table 29

Intercorrelation of Interaction Variables and A.F.D.H. Scores
Supervision and Child Care - Ward C (N = 23)

| | Nursing Care | Physical Development | Aware-ness | Self Help |
|---|---|---|---|---|
| Supervision | | | | |
| Verbal Non-Task-Related | n.s. | n.s. | n.s. | n.s. |
| Physical | n.s. | n.s. | n.s. | n.s. |
| Play/Instruction | n.s. | n.s. | 0.47* | n.s. |
| Child Care | | | | |
| Non-Verbal Task-Related | n.s. | n.s. | n.s. | n.s. |
| Verbal Task-Related | n.s. | n.s. | n.s. | n.s. |
| Verbal Non-Task-Related | n.s. | n.s. | n.s. | n.s. |
| Physical | n.s. | n.s. | n.s. | n.s. |

*$p < .05$

4. Ward D

In Ward D, as shown in Table 30, the pattern of interaction during Supervision was that conversation, as measured by Verbal Non-Task-Related interaction, by the attendants with the residents was often accompanied by physical interaction.

Table 30

Correlation Matrix for Interaction Variables

Supervision and Child Care - Ward D (N = 21)

| | Supervision | | | Child Care | | | |
|---|---|---|---|---|---|---|---|
| | VNTR | Phys. | Play | NVTR | VTR | VNTR | Phys. |
| Verbal Non-Task-Related | .51** | n.s. | n.s. | n.s. | n.s. | n.s. | |
| Physical | | n.s. | n.s. | n.s. | n.s. | n.s. | |
| Play/Instruction | | | n.s. | n.s. | n.s. | n.s. | |
| Non-Verbal Task-Related | | | | -0.86*** | -0.63** | n.s. | |
| Verbal Task-Related | | | | | | n.s. | |
| Verbal Non-Task-Related | | | | | | | |
| Physical | | | | | | | |

*** $p < .001$
** $p < .01$

Table 31 shows the intercorrelations of interaction variables and scores on the A.F.D.H. scale for Ward D. There was only one significant relationship between amount of interaction and functional level. Residents with high scores in *Awareness* were least likely to be fed in silence. This relationship also occurred in Ward B.

Table 31
Intercorrelation of Interaction Variables and A.F.D.H. Scores
Supervision and Child Care - Ward D (N = 21)

| | Nursing Care | Physical Development | Aware-ness | Self Help |
|---|---|---|---|---|
| Supervision | | | | |
| Verbal Non-Task-Related | n.s. | n.s. | n.s. | n.s. |
| Physical | n.s. | n.s. | n.s. | n.s. |
| Play/Instruction | n.s. | n.s. | n.s. | n.s. |
| Child Care | | | | |
| Non-Verbal Task-Related | n.s. | n.s. | -0.44* | n.s. |
| Verbal Task-Related | n.s. | n.s. | n.s. | n.s. |
| Verbal Non-Task-Related | n.s. | n.s. | n.s. | n.s. |
| Physical | n.s. | n.s. | n.s. | n.s. |

* $p < .05$

5. All Wards

Table 32 shows the correlation of the interaction variables for all wards. Conversation, physical interaction and play/instruction had high intercorrelations. This pattern is similar to that of Ward B.

Table 32

Correlation Matrix for Interaction Variables

Supervision and Child Care - All Wards (N = 77)

| | Supervision | | | Child Care | | | |
|---|---|---|---|---|---|---|---|
| | VNTR | Phys. | Play | NVTR | VTR | VNTR | Phys. |
| Verbal Non-Task-Related | | 0.46*** | 0.40*** | n.s. | n.s. | n.s. | n.s. |
| Physical | | | 0.31** | n.s. | n.s. | n.s. | n.s. |
| Play/Instruction | | | | n.s. | n.s. | n.s. | n.s. |
| Non-Verbal Task-Related | | | | | -0.52*** | -0.61*** | n.s. |
| Verbal Task-Related | | | | | | 0.26* | n.s. |
| Verbal Non-Task-Related | | | | | | | n.s. |

*** $p < .001$
** $p < .006$
* $p < .02$

Table 33 shows the intercorrelation of interaction variables and A.F.D.H. scores over all wards. There was a significant tendency for attendants to engage in play/instruction with residents who had high scores in *Physical Development*. Residents with high scores in *Physical Development* and *Awareness* were also most likely to be talked to during mealtime; and residents with high scores in *Nursing Care* were more likely to be fed in silence.

Table 33

Intercorrelation of Interaction Variables and A.F.D.H. Scores

Supervision and Child Care - All Wards (N = 77)

| | Nursing Care | Physical Development | Aware-ness | Self Help |
|---|---|---|---|---|
| Supervision | | | | |
| Verbal Non-Task-Related | n.s. | n.s. | n.s. | n.s. |
| Physical | n.s. | n.s. | n.s. | n.s. |
| Play/Instruction | n.s. | 0.26** | n.s. | n.s. |
| Child Care | | | | |
| Non-Verbal Task-Related | 0.25** | n.s. | -0.25** | n.s. |
| Verbal Task-Related | n.s. | 0.26** | 0.24** | n.s. |
| Verbal Non-Task-Related | n.s. | n.s. | 0.43*** | n.s. |
| Physical | n.s. | n.s. | n.s. | n.s. |

*** $p < .001$

** $p < .02$

Resident Location during Supervision

Figure 6 gives an indication of the time which residents in each ward spent in bed, out of bed in the corridor, and outside in the play area, as a percentage of the total observation time during Supervision. Despite the apparent wide variation in time spent in bed with respect to residents in Wards A and B, the difference did not reach statistical significance ($\chi^2(1) = 3.76$, $p < .10 > .05$); at the same time, opportunities for interaction with attendants were undoubtedly curtailed by the percentage of time the residents of Ward A spent in their beds.

Ward A residents spent 10 per cent of their time outside in the play area, but the low average rate of interaction recorded indicates that little attempt was made by the attendants to talk to or play with them when they were outside. By contrast, Ward D residents, who spent only slightly more time outside, had a significantly greater rate of interaction with their attendants.

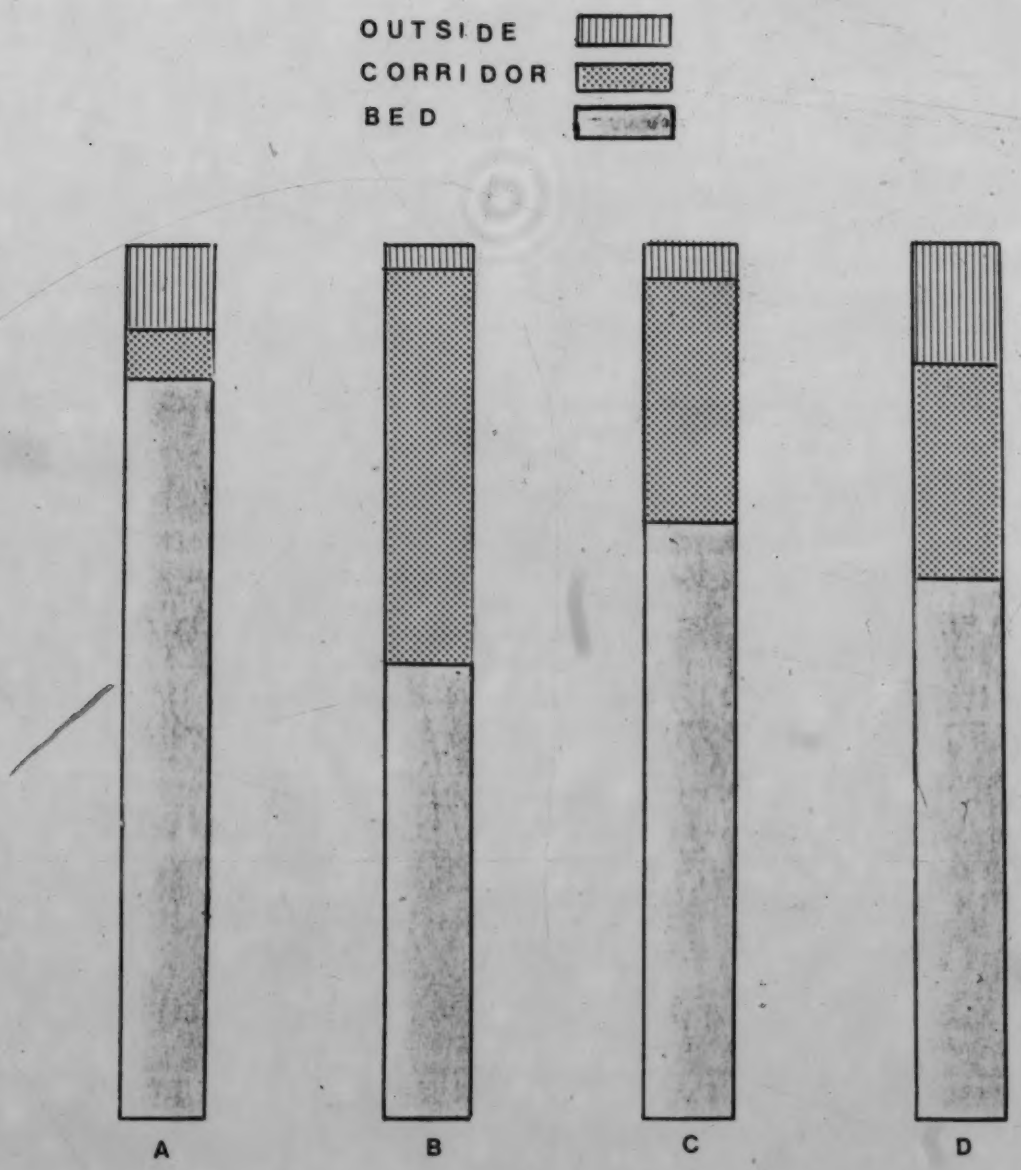



Figure 6: *Location of Residents during Supervision as a Percentage of Total Observation Time - By Ward.*

| | Bed | Corridor | Outside |
|---|---|---|---|
| Ward A | 85% | 5% | 10% |
| Ward B | 52% | 45% | 3% |
| Ward C | 68% | 28% | 4% |
| Ward D | 62% | 24% | 14% |

# CHAPTER VII

# DISCUSSION AND IMPLICATIONS

## Discussion of Results

*Hypothesis 1* *There will be significant inter-ward differences in the amount of interaction during supervision between attendants and non-ambulatory, profoundly-retarded residents in the same institution.*

Hypothesis 1 was confirmed. There were differences found on the bases of both ward and sex. Girls in all wards were talked to more than boys, perhaps because the attendants were female and were more at ease with members of their own sex in a situation where interaction was not required as a part of the child-care workers' duties. There was also a ward difference with respect to the amount of time spent by attendants playing and instructing residents. In two of the wards, no interaction occurred in the play/instruction category for male residents; thus the inter-ward difference was confounded by a sex difference, inasmuch as the greatest variation in attendant-resident interaction lay in the amount of attention received by male residents from one ward to another. It is assumed that this situation stemmed from an inclination on the part of the female child-care workers to interact socially with female residents combined with low-overall rates of interaction in two of the wards so that males received proportionately less than the already low rate of interaction.

*Hypothesis 2* *There will be significant inter-ward differences in the type of interaction during child care.*

Significant differences between the wards were found with respect to two of the interaction variables during Child Care; thus Hypothesis 2 was confirmed. The differences lay in the areas of non-verbal and verbal, task-related interaction. Ward A had a significantly higher level of non-verbal interaction during child care than Ward B, and attendants in

both Wards B and D talked to the residents in their wards more than was the case in Ward A, even though the conversation largely consisted of instructions and comments to facilitate the task of feeding. This type of interaction was associated in Ward A (but not in the other wards) with level of *Self Help* as measured on the Adaptive Functioning of the Dependent Handicapped scale. This would probably lead the attendants to confine their comments to those children whom they judged to be most able to benefit from them.

*Hypothesis 3* *Because all members of the child-care staff are female, the interaction rate of attendants and female residents will be higher than that between attendants and male residents.*

Hypothesis 3 was partly confirmed. Females in all wards did receive more attention in all interaction categories except non-verbal task-related interaction. However, the difference in the amount of interaction reached significance only in the case of conversation during Supervision. The attendants were more inclined to chat with the female residents than with the male residents. Here again, this might have been the result of the attendants and residents being more at ease with one another because they were of the same sex.

*Hypothesis 4* *Ward placement will be more predictive of the type and amount of interaction than factors such as age, sex, and level of awareness.*

Hypothesis 4 was partially confirmed, inasmuch as three of the interaction variables showing significant differences were related to ward placement. Age was not a factor in contributing to variations in interaction, except in the case of Ward A where attendants spent more time playing with younger residents. Level of *Awareness* as measured by the A.F.D.H. was positively correlated with play/instruction interaction during Supervision in Wards A and C, and negatively correlated in Wards B and D with non-verbal task-related interaction during Child Care.

Over all wards, as in Wards B and D, responsive residents were least likely to be fed in silence and significantly more likely to be chatted to than less responsive residents. *Physical Development*, as measured by the A.F.D.H. was positively correlated with physical interaction during Supervision in Wards A and B, and during Child Care in Ward B. Over all wards, attendants tended to play with and instruct the more mobile residents. However, the higher scores in *Physical Development* of Ward C residents did not lead to a higher rate of play/instruction interaction in that ward as compared to the other wards. Greater mobility was also associated in all wards with increased verbal task-related interaction during Child Care. Here again, however, Ward C residents did not receive a higher rate of this type of interaction than other residents, despite their significantly higher scores in the *Physical Development* category of the A.F.D.H. A high score in *Nursing Care* was associated, over all wards, with a high percentage of non-verbal interaction during Child Care. This relationship did not show up in individual wards. Other factors were more important in determining the amount of attention a resident would receive. Sex appears to be an important determinant, and accounted for a significant difference in the amount of conversation during Supervision. Nevertheless, ward placement seems to have the most predictive value as far as determining how much attention a resident will receive from attendants.

*Hypothesis 5 The Adaptive Functioning of the Dependent Handicapped scale measures four discrete areas of functioning.*

This hypothesis was not confirmed. Based on the results of the factor analysis of resident scores on this scale, followed by a varimax rotation, it appears that the scale is measuring three areas of functioning: gross motor co-ordination, fine motor co-ordination, and responsiveness. Four items in the scale seem to be pure measures of Factor 1 (gross motor-co-ordination). They are Contact with Things from the *Awareness* category, Dressing and Toileting from *Self Help*, and Head from *Physical Development*. The only pure measure of Factor 2 (fine motor co-ordination) was Body in *Nursing Care*. Nine of the ten items in *Physical*

*Development* and *Self Help* had high loadings on the first two factors. There is no doubt that gross and fine motor skills are essential for the development of self help skills.

The third factor which came out of the factor analysis seemed to be a measure of responsiveness. Washing in *Self Help* and Medications in *Nursing Care* were pure measures of Factor 3. Of the four items which did not have significant loadings on any factor, three had higher loadings on Factor 3 than on the other two factors. They were Medical Care in *Nursing Care* and two items in *Awareness*, Eye Contact and Contact with His World. Communication in *Awareness* had weak loadings on Factors 1 and 2. Over all, the items in *Nursing Care* and *Awareness* were the least clearly defined, although six of the ten items seemed to have a relationship to responsiveness.

The factor analysis revealed that the Adaptive Functioning of the Dependent Handicapped is tapping three important areas of functioning for the profoundly retarded.

* * * * * * *

One of the most striking findings which emerged from the analysis of data gathered in the course of this study was that each ward seemed to have a distinctive pattern of attendant-child interaction. The differences were most apparent in the case of Ward A compared to Ward B. In Ward A, the child-care pattern seemed to be more custodial than habilitative. When attendants were engaged in feeding the children on a one-to-one basis, little attempt was made, especially among the junior staff, to make mealtime an occasion for social interaction. For the most part children were fed in silence, and even the incidence of brief comments was significantly less than it was in two of the other wards. During Supervision, attendants spent a great deal of time in passive supervision, and many children remained in their beds. Even when the children were taken outside into the play area, the attendants seldom spoke to them or played with them. The attendants in this ward, unlike those in the other wards, tended to interact with residents on the basis of their functional

level, age, and sex. Thus, the residents who received attention tended to be young, female residents who were more responsive than the average resident and had developed some self-help skills. Ward A residents were not significantly different in functional level from residents in Wards B and D where the rate of attendant-child interaction was significantly higher.

Ward B attendants spoke to both male and female residents during Child Care significantly more than was the case in Ward A. And, although the interaction rate of female residents and attendants was greater than that for male residents, male residents in Ward B enjoyed a relatively high rate of social interaction with their attendants vis-a-vis male residents in Ward A, and to a lesser extent, in Ward C. Attendants in Ward B were more likely to chat with responsive children than with less responsive children. However, as was the case in the differential treatment by sex, less responsive children because they were in Ward B had a better chance to be talked to than had they been in Ward A. It is interesting to note that the average resident in Ward B had a significantly lower score in the *Awareness* category of the A.F.D.H. than the average resident in Ward C, where the level of interaction was lower.

The child-care pattern in Ward A seems to have some of the features of institution-oriented institutions or living units, while the child-care pattern in Wards B and D more closely approximates the child-oriented child-care pattern. The residents in each of the four wards of this institution were similar in all important respects: they were all non-ambulatory, diagnosed as profoundly-retarded (although they could not be tested by conventional IQ tests), and were unable to feed, dress, or toilet themselves or express themselves in intelligible speech. There were no significant differences between wards in the age of resident, in male/female ratio, staff/resident ratio, or ward layout. The only sources of variation found were in average functional level, and this applied only to one ward and seemed to have no important relationship to differences found in interaction. There were differences in ward management which affected the location of children during Supervision as well as the participation of senior staff in interaction

with the children outside of direct child care. The data collected gives the impression that in the wards where interaction was high, senior staff and junior staff contributed equally in providing social stimulation for the residents. There is the implication, by no means fully substantiated, that there was little difference in the way in which the senior and junior staff performed their roles. Be that as it may, no well-founded reasons to explain the variations in child-care practices from one ward to another were found as a result of the present study. A closer look at ward management seems to be a worth-while goal for future research in this area.

## Implications for Future Research

It was not possible in the present study to assess the effects on the residents of living in one ward as compared to living in another. It seems reasonable to conclude, however, that Ward A residents, especially the males, were more socially deprived than residents in the other wards.

A study by Skeels and Dye published in 1939 provided a demonstration that increased opportunities to interact with adults brought about permanent intellectual improvements in a group of mentally-retarded children living in an orphanage. Researchers in the field of mental retardation have, on the whole, been slow to apply the knowledge gained from the Skeels and Dye research and from more recent studies of a similar design (e.g., Gray and Kasteler, 1969; McKinney and Keele, 1963; Tizard, 1964) to such matters as the effects of institutionalization and the comparison of institutional environments. It is perhaps an indication of the tenacity of the concept of the mentally retarded child as *different* from other children which delayed the realization that social deprivation can have deleterious effects on the intellectual, social and emotional development of all children, whatever their level of competence.

The frequency and nature of adult-child interaction in institutions for the mentally retarded is now recognized as a prime factor in identifying effective and ineffective child-care environments. But, important questions remain to be answered. In the interests of providing the best possible growth environment for children who are unable to be raised in their own families, the two most important issues seem to be: why do institutional environments differ, and how can an ineffective or institution-oriented environment be transformed into an effective or child-oriented environment?

It is a reasonable assumption that resolving the first question is a prerequisite to providing answers to the second question. In this regard, results of a recently published study (McCormick, Balla, and Zigler, 1975) indicate that child-care practices can be predicted from the level of handicap of the residents. Specifically, their comprehensive survey of child-care practices in institutions in the United

States and in a Scandinavian country revealed that, in both countries, institution-oriented child-care practices were most often found in units housing very severely retarded children. The authors considered this association to be tenable, in view of research evidence that adult-initiated social interaction is curtailed in the presence of unresponsive children. On the other hand, level of resident handicap was not found to be predictive of child-care practices in a series of studies conducted by an English research team (King, Raynes, and Tizard, 1971). *Inter alia*, administrative practices relating to the bureaucratic structure of an institution, the definition of staff roles, and the amount of autonomy granted to those most directly involved in child care were found to be predictive of child-care practices.

The research reported in this thesis was not designed to measure the extent to which administrative practices predict child-care practices. On the other hand, the proposition that level of handicap would predict type of child care found little support. Indeed, the illustration that child-care practices can vary between wards in the same institution providing care for non-ambulatory, profoundly-retarded children seems to be a most encouraging sign. Given the low incidence of profound retardation in the general population, the number of children involved in this study was quite large. If it had turned out that child-care practices in each ward were characterized by very low rates of verbal and physical interaction between attendants and children, the assumption would surely have been that the functional level of the residents precluded high rates of interaction between them and their attendants. On the basis of finding significantly different patterns of interaction between wards, a more encouraging prognosis is possible.

The patterns of interaction observed in this study and in the pilot study point to the possibility that the amount of interaction between profoundly retarded children and their attendants during supervision is indicative of the overall level of interaction. That is to say, *institution-oriented living units may be identified by low rates of interaction between staff and children at those times when child care is not required*. If this hypothesis is valid--and it would have to be substantiated by further research--then the way to transform an

institution-oriented environment to a child-oriented environment would be to increase the interaction between attendants and residents during supervision. This could be done administratively by making a recreational period part of the day's activities. Each attendant would have a resident assigned to her for a specified time--as short as 15 minutes, if necessary--for a pre-arranged activity. The attendant would report back to the unit head on the child's progress and would have some responsibility for planning the next day's activities. In most cases, the interaction between staff and children occurs when the staff has a task to do, e.g., feeding or washing, which must be completed within a specified time. Their main concern is to get the job done quickly and efficiently. There is no reason to doubt that if part of their duties was to play with the children for a short time each day they would not do as good a job with recreational activities as they do with physical care. Interaction with the children in relaxed conditions would, in all likelihood lead to an increase in social interaction which would carry over to child care duties.

One of the findings of this study was that female residents seemed to get more attention than male residents, except for Ward D males during supervision. Perhaps the introduction of male child-care workers in addition to female child-care workers would result in an increase in interaction with male residents, although there is no firm evidence to support this. In any case, both male and female residents would probably benefit from the opportunity to interact with attendants of both sexes.

Large-scale, cross-institutional surveys have been instrumental in illuminating gross distinctions in institutional environments, and they will undoubtedly continue to be a source of valuable information. At the same time, it is to be hoped that researchers will continue to engage in detailed, fine-grained analyses of day-to-day institutional regimes. There is every reason to be optimistic that the knowledge gained by a combination of these research techniques will eventually enable us to transform ineffective institutional environments into effective ones.

BIBLIOGRAPHY

Ainsworth, M.D. *Deprivation of maternal care: a reassessment of its effects.* Geneva: 1962, World Health Organization.

Balla, David A., Butterfield, Earl C., and Zigler. Effects of institutionalization on retarded children: A longitudinal cross-institutional investigation. *Amer. J. ment. Defic.*, 1964, *78*, 5, 530-549.

Bandura, A. and Walters, R.H. *Social learning and personality development.* Holt, Rinehard and Winston, Inc., 1963.

Baumeister, A.A. Problems in comparative studies of mental retardates and normals. *Amer. J. ment. Defic.*, 1967, *71*, 869-875.

Bell, R.Q. A reinterpretation of the direction of effects in studies of socialization. *Psychological Review*, 1968, *75*, 81-95.

Beller, E.K. Dependency and independence in young children. *J. genet. Psychol.*, 1955, *87*, 25-35.

Belmont, John M. Medical-behavioral research in retardation. In Norman R. Ellis (Ed.), *International review of research in mental retardation.* New York: Academic Press, 1971, 5, 1-81.

Bensberg, G.J., Colwell, C.N. and Cassel, R.H. Teaching the profoundly retarded self-help activities by behavior shaping techniques. *Amer. J. ment. Defic.*, 1965, *69*, 674-679.

Bijou, Sidney W. A functional analysis of retarded development. In Norman R. Ellis (Ed.), *International review of research in mental retardation.* New York: Academic Press, 1966, *1*, 1-19.

Butterfield, E.C. and Zigler, E. The influence of differing institutional social climates on the effectiveness of social reinforcement in the mentally retarded. *Amer. J. ment. Defic.*, 1965, *70*, 48-56.

Casler, L. *Maternal deprivation: A critical review of the literature.* New York: Monographs of the Society for Research in Child Development, 1961, *26*, 2.

Centerwall, S.A. and Centerwall, W.R. A study of children with mongolism reared in the home compared to those reared away from home. *Pediatrics*, 1960, 25, 4, 678-685.

Dailey, W.F., Allen, G.J., Chinsky, J.M. and Veit, S.W. Attendant behavior and attitudes toward institutionalized retarded children. *Amer. J. ment. Defic.*, 1974, 78, 5, 586-591.

Dayan, M. Toilet training retarded children in state residential institutions. *Ment. Retard.*, 1964, 2, 116-117.

Dentler, R.A., and Mackler, B. The socialization of retarded children in an institution. *Journal of Health and Human Behavior*, 1961, 2, 243-252.

Fisher, M.A. and Zeaman, D. Growth and decline of retardate intelligence. In Norman R. Ellis (Ed.), *International Review of research in mental retardation*, 1970, 5, 151-191.

Gray, R.M. and Kasteler, J.M. The effects of social reinforcement and training on institutionalized mentally retarded children. *Amer. J. ment. Defic.*, 1969, 74, 1, 50-56.

Hagen, J.W., and Huntsman, N.J. Selective attention in mental retardation. *Developmental Psychology*, 1971, 5, 151-160.

Jungjohann, E. and Kaufman, M. An evaluation of a milieu therapy programme for severely retarded children in an institution. *J. of Ment. Subnorm.*, 1966, 12, 61-5.

Katz, P.A. and Rosenberg, S. Effects of labels on the perception and discrimination learning of retardates. *J. of abnorm. Psych.*, 1969, 74, 95-99.

King, R.D. and Raynes, N.V. An operational measure of inmate management in residential institutions. *Social Science and Medicine*, 1968 (a), 2, 41-53.

King, R.D. and Raynes, N.V. Some determinants of patterns of residential care. In *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, Montpelier, 1967, Ed. B.W. Richards. Reigate, Michael Jackson. 1968 (b), 642-9.

King, R.D., Raynes, N.V. and Tizard, J. *Patterns of residential care: Sociological studies in institutions for handicapped children.* London: Routledge and Kegan Paul, 1971.

Klaber, M.M. The retarded and institutions for the retarded: A preliminary report. In Seymour B. Sarason and John Doris (Eds.), *Psychological Problems in Mental Deficiency.* Harper and Row, 1969.

Kugel, R.D. and Reque, D. A comparison of mongoloid children. *J. of the Amer. Medical Assoc.*, 1961, *175*, 11, 959-61.

McCormick, M., Balla, D., and Zigler, E. Resident-care practices in institutions for retarded persons: A cross-institutional, cross-cultural study. *Amer. J. of ment. Defic.*, 1975, *80*, 1, 1-17.

McKinney, J.P., and Keele, T. Effect of increased mothering on the behavior of severely retarded boys. *Amer. J. of ment. Defic.*, 1963, *67*, 556-562.

Menolascino, F. Emotional disturbance and mental retardation. *Amer. J. of ment. Defic.*, 1965, *70*, 248-256.

Mitchell, Anna C. and Smeriglio, V. Growth in social competence in institutionalized mentally retarded children. *Amer. J. of ment. Defic.*, 1970, *74*, 248-256.

Morris, P. *Put away: A sociological study of institutions for the mentally retarded.* London: Routledge and Kegan Paul, 1969.

Pero, J.F. Social orientation method of social training in an institution. *Amer. J. of ment. Defic.*, 1955, 390-396.

Pursely, N.B. and Hamilton, J.W. The development of a comprehensive cottage-life program. *Ment. Retard.*, 1965, *3*, 26-29.

Raynes, N.V. and King, R.D. The Measurement of Child Management in Residential Institutions for the Retarded. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, Montpelier, 1967. Ed. B.W. Richards, Reigate, Michael Jackson, pp. 637-41.

Rollin, H. Personality in mongolism with special reference to the incidence of catatonic psychosis. *Amer. J. of ment. Defic.*, 1946, *51*, 219-237.

Shipe, D. and Shotwell, A.M. Effect of out-of-home care on mongoloid children: A continuation study. *Amer. J. of ment. Defic.*, 1965, *69*, 649-52.

Shotwell, A.M. and Shipe, D. Effect of out-of-home care on the intellectual and social development of mongoloid children. *Amer. J. of ment. Defic.*, 1964, *68*, 693-9.

Skeels, H.M., and Dye, H.B. A study of the effects of differential stimulation on mentally retarded children. *Proc. A.A.M.D.*, 1939, *44*, 114-136.

Spradlin, J.E. The Premack hypothesis and self-feeding by profoundly retarded children: A case report. Parsons Res. Center, Working Paper #79, 1964.

Spradlin, J.E. and Girardeau, F.L. The behavior of moderately and severely retarded persons. In Norman R. Ellis (Ed.), *International Review of research in mental retardation*. New York: Academic Press, 1966, 257-298.

Stedman, D.J. and Eichorn, D.H. A comparison of the growth and development of institutionalized and home-reared mongols during infancy and early childhood. *Amer. J. of ment. Defic.*, 1964, *69*, 391-401.

Stephen, E. and Robertson, J. Can institutional care improve? *Special Education*, 1966, 55, 4, 13-16.

Stephen, E. and Robertson, J. Paper No. 2 in E. Stephen (Ed.) Residential care for the mentally retarded, *Symposium No. 1. Institute for Research into Mental Retardation*. Oxford Pergamon Press, 1970, 19-24.

Stevenson, H.W. and Fahel, L.S. The effect of social reinforcement on the performance of institutionalized and non-institutionalized normal and feeble-minded children. *J. Pers.*, 1961, *29*, 136-147.

Thormahlen, P. *A study of on-the-ward training of trainable mentally children in a state institution*. Calif. Mental Health Research Monograph, No. 4. State of California Dept. of Mental Hygiene, 1965.

Tizard, J. Part IV. The Brooklands residential unit, in J. Tizard, *Community services for the mentally handicapped*. London: Oxford University Press, 1964, 85-137.

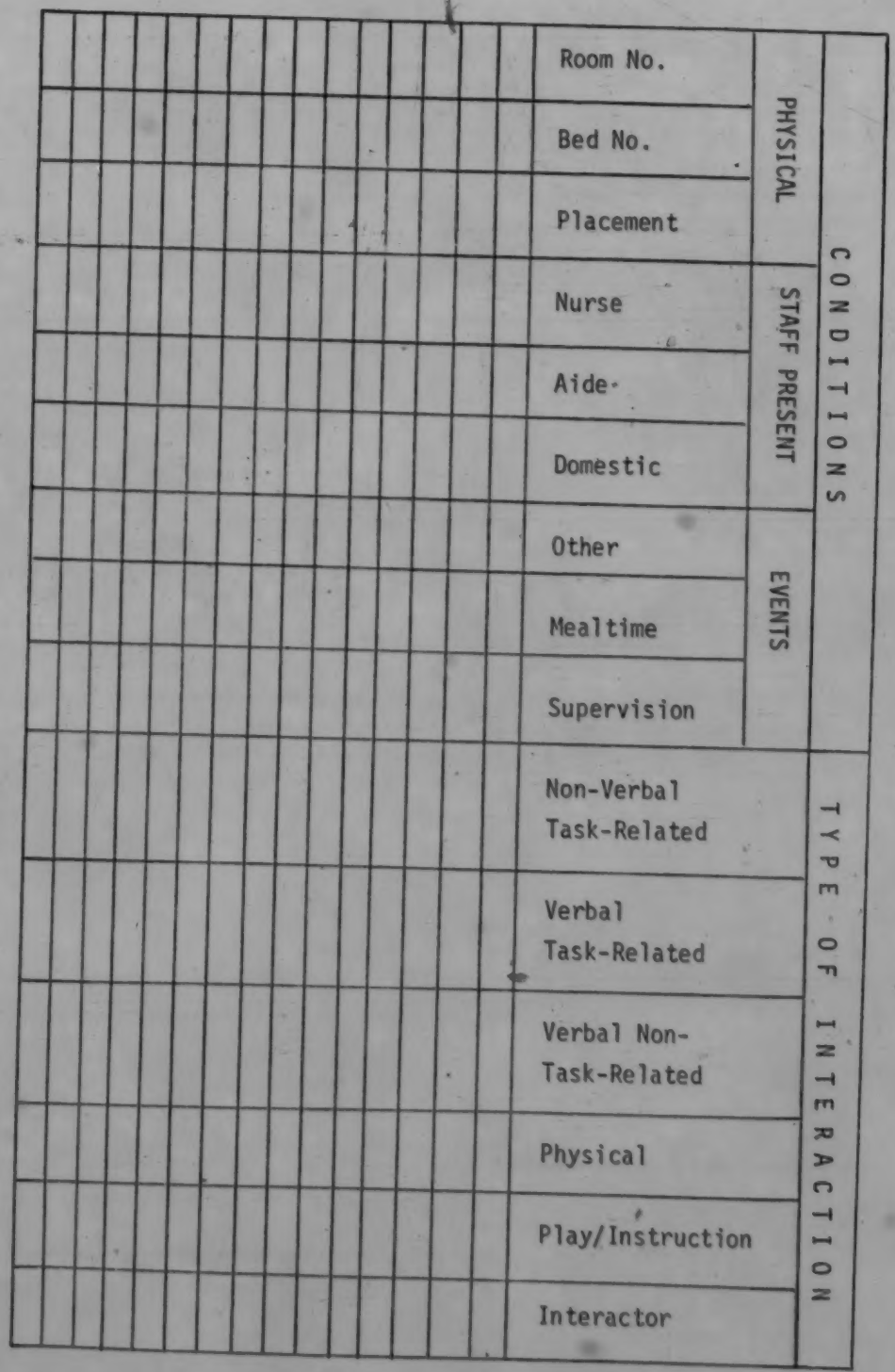
Warren, S.A. and Mondy, L.W. To what behavior do attending adults respond? *Amer. J. of ment. Defic.*, 1971, *75*, 4, 449-455.

Yarrow, L.J. Maternal deprivation: Toward an empirical and conceptual re-evaluation. *Psych. Bull.*, 1961, *58*, 459-490.

Yarrow, M.R., Waxler, C.Z., and Scott, P.M. Child effects on adult behavior. *Developmental Psychology*, 1971, *5*, 300-311.

Zigler, E.F., Hodgen, L., and Stevenson, H.W. The effect of support on the performance of normal and feebleminded children. *J. Pers.*, 1958, *67*, 106-122.

APPENDIX A: OBSERVATION CHECKLIST



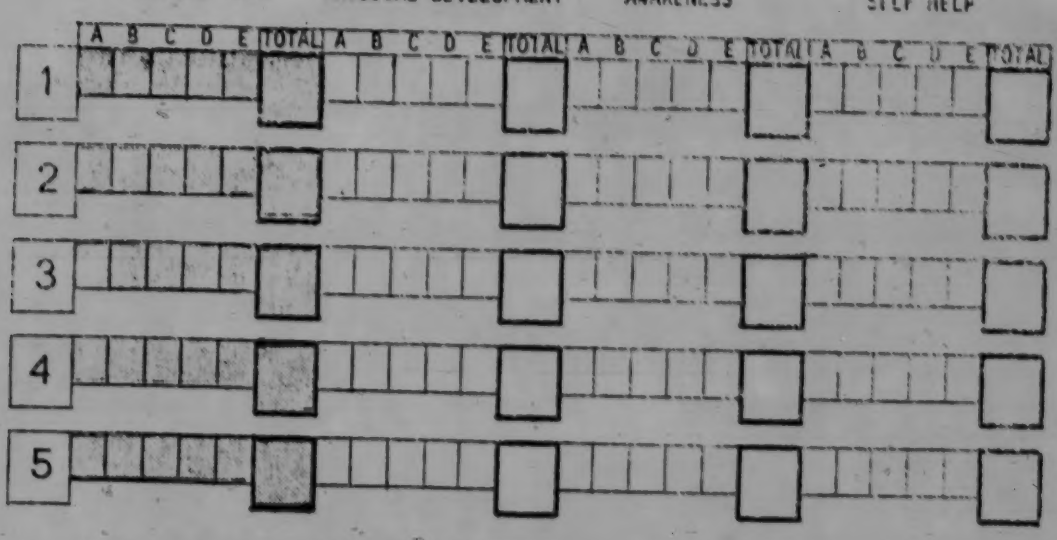
# ADAPTIVE FUNCTIONING OF THE DEPENDENT HANDICAPPED

N.J. Marlett, S. Cameron
S. Douglas, E. Hooper, G. Long

Prepared for Services for the Handicapped
Province of Alberta, 1974
by Staff of
Baker Training Centre

NAME:_____ AGE:____

| | DATE | OBSERVER | LOCATION | OTHER INFORMATION |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |




General Instructions

The AFDH contains 75 skills or targets relevant to the profoundly retarded child or adult and 25 common nursing concerns (cf. back page for further description). The instrument can be used to:

1. identify training and medical needs of an existing population in order to group children into program areas.
2. select group priorities in order to structure daily activities that reflect the children's needs.
3. select targets for individual children.
4. measure program direction and outcome.
5. assess the child prior to intake to assist in proper placement of the child within existing options.

2.

Scoring Instructions

The booklet can be used in two ways:

1. as indicated for one child over five time periods, or
2. for group assessments with five children in one booklet.

To assess the child's functioning:

1. On the front page record the date of the assessment, your name and the child's location beside #1. #1 then refers to that particular assessment throughout the booklet.

2. Read each statement and assign a mark in the column as follows:
   - 2 - if the child does the skill on his own regularly.
   - 1 - if the child is trying but hasn't quite mastered the behavior.
   - 0 - if the child does not show or has not had the chance to show the behavior.

   When the assessment is being used to select training goals the following expanded 3 point scale is recommended. The scores - 0, 1, 2 - remain the same but further information is available.

   - 2 - the target skill has been reached, i.e., the behavior skill occurs regularly and without assistance.
   - 1 - the target is within reach and a potential target. This section has been further subdivided to ensure that potential targets are not being overlooked due to lack of exposure and to identify possible training approaches.
     - 1a - if the child can do the skill but does so infrequently.
     - 1b - if the child can do the skill with assistance.
     - 1c - if the child responds after following structured training exposure.* (cf. below)
   - 0 - the target at this point is out of reach, i.e., the behavior has not occurred or the child cannot, because of disability, attempt it.

3. Record the totals at the end of each section and on the first page.

4. Choose a skill to work on until the next assessment. Refer to back page for assistance in choosing skills.

*Structured Training Exposure

The observer is asked to isolate skills close to skills already mastered (2 or 1 credits) and introduce 5 short training sessions over a period of 2-3 days to determine whether the child is attending to the skill and is showing an effort to learn it.

The training sessions should include (a) encouraging the child, (b) use of physical assists and guidance, and (c) making any stimuli as pleasantly noticeable as possible. Example: if the child has looked at people and things but has not raised his hands to watch them, you would, on 5 separate occasions, draw attention to his hands (bright mittens, jingle bells, etc.) and play little games with his hands at eye level. If, after 5 sessions the child makes some attempt to watch his hands on his own he would be marked as 1c.

# NURSING CARE

Height: (first)_____ (last)_____ Diagnosis:_____
Weight: (first)_____ (last)_____
Seizure Activity: controlled _____ Blind:_____
no./month: 1___ 2___ 3___ 4___ 5___ Deaf:_____

A MEDICATIONS: mark 1 - prn
mark 2 - regular meds.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Laxative. . . . . | | | | | |
| 2. Seizure medications. . . . . | | | | | |
| 3. Sedatives/tranquilizers. . . . . | | | | | |
| 4. Antibiotics. . . . . | | | | | |
| 5. Congestion meds. . . . . | | | | | |
| Other (specify):_____ | | | | | |
| A Total | | | | | |

B BODY: mark 1 (✓) - tight (X) - weak
2 (✓✓) - rigid (XX) - limp

| | | | | | |
|---|---|---|---|---|---|
| 1. Face (lips, neck). . . . . | | | | | |
| 2. Trunk. . . . . | | | | | |
| 3. Arms (underline: wrists, elbows, shoulders). | | | | | |
| 4. Legs (underline: feet, knees, hips). . . . | | | | | |
| 5. Fingers and/or toes. . . . . | | | | | |
| Other (specify):_____ | | | | | |
| B Total | | | | | |

C MEDICAL CARE

| | | | | | |
|---|---|---|---|---|---|
| 1. Congestion (positioning, suction). . . . | | | | | |
| 2. Positioning/bed sores. . . . . | | | | | |
| 3. Ulcer care/change of dressings. . . . . | | | | | |
| 4. Colostomy, ileostomy changes. . . . . | | | | | |
| 5. Impacted feces. . . . . | | | | | |
| Other (specify):_____ | | | | | |
| C Total | | | | | |

D OBSERVATION FOR INJURY

| | | | | | |
|---|---|---|---|---|---|
| 1. Gets tangled in sheets or caught in bed slats. | | | | | |
| 2. Hurts himself (bites hands, slaps, pokes eyes, bangs head, picks hair, etc.). . . . . | | | | | |
| 3. Swallows socks, hands, etc. . . . . | | | | | |
| 4. Injures others (bites, slaps, etc.). . . . | | | | | |
| 5. Other (specify):_____ | | | | | |
| D Total | | | | | |

E FEEDING

| | | | | | |
|---|---|---|---|---|---|
| 1. No swallow response. . . . . | | | | | |
| 2. Large tongue or tongue thrust. . . . . | | | | | |
| 3. Bite reflex. . . . . | | | | | |
| 4. Gagging. . . . . | | | | | |
| 5. Aspiration. . . . . | | | | | |
| Other (specify, e.g., tube fed):_____ | | | | | |
| E Total | | | | | |
| NURSING CARE TOTAL | | | | | |

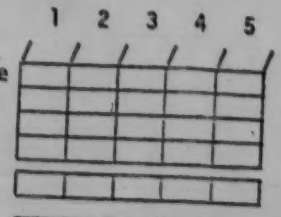
# PHYSICAL DEVELOPMENT

A HEAD

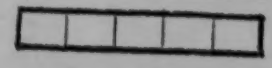
1 2 3 4 5

On tummy:
1. Lifts head off mat for 3 sec. or more
2. Turns head from side to side.

On back:
3. Rolls head from side to side.
4. Lifts head up. . . . . .
5. Holds head steady while being pulled into sitting position.

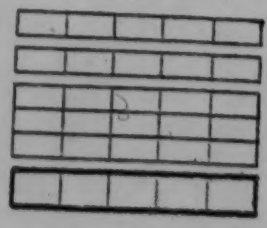


A Total



B LEGS

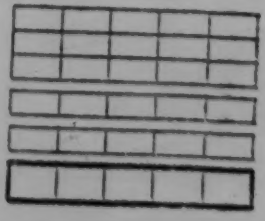
1. Bends knees and hips when placed on chair.
2. Uses legs to push against foot of bed, your hands, toys, etc. . . . . .
3. Kicks his feet or legs. . . . . .
4. Bears weight on legs when held. . . . . .
5. Transfers weight from foot to foot. . . . .



B Total

C BODY

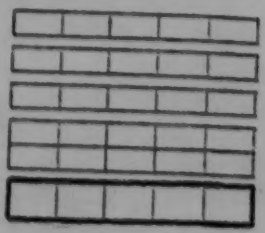
1. Turns (back to side or tummy to side). . .
2. Rolls (back to tummy or tummy to back). . .
3. Balances back and head for more than 5 sec.
4. Can move upper body freely when in sitting position. . . . . .
5. Gets into sitting position unaided. . . . .



C Total

D HANDS (or FEET if child cannot use arms)

1. Holds objects for more than 3 sec. when placed in his hand. . . . . .
2. Brings hands up to his face to look at them.
3. Grasps objects when offered and holds on for 3 sec. or more. . . . . .
4. Reaches and grasps for objects. . . . . .
5. Picks up small objects. . . . . .

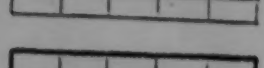


D Total

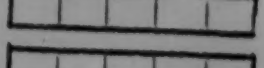
E MOVEMENT

1. Wiggles, squirms, creeps, etc. without specific direction when left on the floor. . . . . .
2. Deliberately moves to toys, staff, other children, etc. by whatever means (specify if other than walking, i.e., creeping, crawling, scooting, etc.)_____
3. Pulls up and stands holding something. . .
4. Walks with support. . . . . .
5. Gets around all by himself during day, i.e., gets from bed to bathroom, activity area to table by whatever means (specify)_____

E Total



PHYSICAL DEVELOPMENT TOTAL



# AWARENESS

1 2 3 4 5

## A EYE CONTACT

1. Searches for sound with eyes and body movements.
2. Eyes follow, in a general way, a slow moving person, bright toy or pen light. . . . . .
3. Eyes closely follow a slow moving bright toy through 180 degrees. . . . . .
4. Focuses on a face or object for more than 5 sec.
5. Focuses attention for longer than 2 minutes. . .

A Total

## B CONTACT WITH HIS WORLD

1. Responds to sound, temperature, touch, sights, smells, being jarred and being carried. . . . .
2. Becomes excited just before meals, baths or walks.
3. Squirms, reaches or makes noise to be lifted or talked to (1 c. if he responds but doesn't initiate interaction). . . . . .
4. Makes strange but quietens with reassurance. . .
5. Explores new situations: watches strangers, seeks out new toys. . . . . .

B Total

## C CONTACT WITH PEOPLE

1. Quietens when cuddled or spoken to softly. . .
2. Responds to voice tone showing pleasure (praise) and displeasure (scolding). . . . . .
3. Smiles back at a smiling face. . . . . .
4. Is particularly attached to a few people. . . .
5. Plays little social games - waves goodbye, plays peak-a-boo, etc. (1 c. if he enjoys but doesn't participate in game). . . . . .

C Total

## D COMMUNICATION

1. Makes some noises, e.g., cries, squeals, ahs, ohs.
2. Babbles - same sound over and over. . . . . .
3. Repeats sound and gestures made by someone else (1 c. if attends when you are imitating his sound).
4. Uses a few words or gestures on all occasions, e.g., "hi", blowing a kiss, "bye-bye" (specify) _____
5. Makes his needs known by gestures or words, e.g., points to the bathroom (specify)_____

D Total

## E CONTACT WITH THINGS

1. Bats at overhead toys when on his back. . . . .
2. Rattles or squeaks toys or furniture. . . . . .
3. Tastes and feels objects. . . . . .
4. Deliberately 'plays' with a toy, e.g., transfers it from hand to hand, repeatedly drops it, etc.
5. Attached to specific toy(s), blankets, etc. . .

E Total

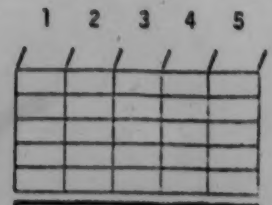
AWARENESS TOTAL

# SELF HELF

1 2 3 4 5

## A FEEDING

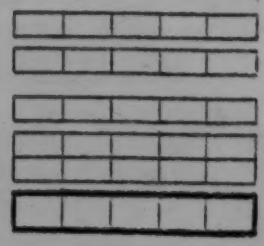
1. Sucks food or swallows on his own. . . . .
2. Takes pureed food from spoon. . . . . .
3. Drinks from a glass/cup. . . . . .
4. Opens mouth when food is presented. . . . .
5. Chews food. . . . . .



A Total

## B EATING

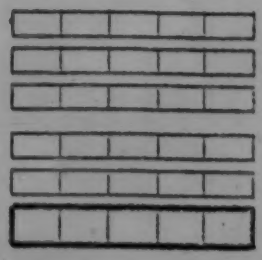
1. Recognizes and reaches for food. . . . . .
2. Eats cookie, sandwich, apple slice, etc. with his fingers. . . . . .
3. Helps hold cup when drinking or drinks from straw. . . . . .
4. Eats with spoon unaided (some mess). . . .
5. Drinks from cup/glass unaided (some mess).



B Total

## C WASHING

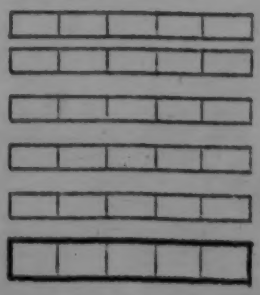
1. Enjoys bath, e.g., splashes or giggles when water squeezed on tummy. . . . . .
2. Helps wash hands and face. . . . . .
3. Helps wash body at bath time, e.g., rubs soap on tummy. . . . . .
4. Helps dry hands and face, e.g., rubs hands together in towel and towels face. . . . .
5. Helps comb hair or brush teetn. . . . . .



C Total

## D DRESSING

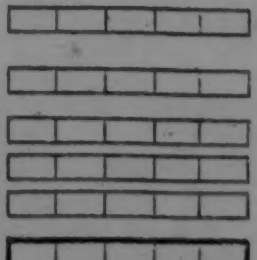
1. Does not squirm and fuss when being dressed.
2. Pulls off hat and socks or mittens, etc. whether requested or not. . . . . .
3. Holds out arms and legs to help while being dressed. . . . . .
4. Takes off some parts of clothing on request (specify)_____
5. Puts on some part of clothing on request (specify)_____



D Total

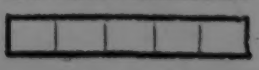
## E TOILETING

1. Has partial bladder control, i.e., has dry diapers at least once per day when changed regularly. . . . . .
2. Uses toilet when placed on it at a few specific times (e.g., after nap, juice, etc.). . . .
3. Toilet trained during day when attended to regularly. . . . . .
4. Indicates when he is wet or soiled. . . . .
5. Lets someone know when he needs to go to the toilet. . . . . .



E Total

SELF HELP TOTAL



## Uses of the A.F.D.H.

### For Large Groups

The instrument was used at Baker Training Centre, Calgary, Alberta to divide a population of 200 profoundly handicapped children and adults into priority training areas.

1. Those with high medical scores were grouped into a medical unit regardless of other scores. Day programs for these children were considered only after the medical needs were met.

2. The priority for children with low awareness, low physical development, low self care was "mothering" with awareness and physical development introduced when possible.

3. Children with high awareness, low physical development, low self care were placed in a unit with a heavy physio input to maximize possible physical development and provide physical assists.

4. The proposed priority for children with low awareness and high physical development, low self care, was stimulation.

5. The priority for children with high awareness, high physical development, low self care, was self care.

6. Children with high scores in all sections were selected for day programs and were moved to another assessment device.

Children were then moved from one unit to another as their needs changed and new children were placed into programs which should meet their priority needs.

### For Small Units

If the children are separated into homogeneous groups, a group profile derived by computing average scores for each of the sections can assist in group program design and evaluation. One can select group targets (goals) from the group profile and arrange the group's daily activities so that the routine allows more time for the group targets. Regular reassessment can then determine progress or lack thereof and a need to change group targets and therefore the structure.

### For Individual Children

The assessment can assist staff in choosing individual targets. One would generally choose a "1" score closest to a "2", i.e., a target within reach and close to one already mastered. Training priorities should generally be awareness and physical development with first attention given to Eye Contact (III.A.) and Head Control (II.A.).

The letters designated on page 2 (i.e., 1a, 1b, 1c) can point to the type of training, e.g.:

1a - If the skill performed infrequently one would generally use reinforcers to increase the frequency being very careful to gradually withdraw the reinforcer once the skill is being performed regularly. This category of target is generally the easiest to master.

1b - If the skill requires assistance one would focus on breaking the task down further, gradually withdrawing assists or finding assists that the child can control himself.

1c - If the child shows a willingness to learn or attend to the skill then one must provide extensive training in small manageable steps. While exposure and the expectancy that the child should perform the skill sometimes produces quick results it is more general that the results are obtained through extensive training in very small steps.

Divisions of the A.F.D.H.

The booklet is divided into 4 major areas of concern with the profoundly handicapped. The NURSING CARE section is to be considered separately from the rest as high scores on this section indicate a problem whereas in all other sections high scores represent achievement. It is therefore shaded to enhance the difference. It includes:

A Medications
B Body
C Medical Care
D Observation for Injury
E Feeding

The PHYSICAL DEVELOPMENT section includes a range of motor skills from birth to approximately 1 year of age. The mobility section does not assume that walking is the only form of mobility, any form of independent movement is acceptable and thus encourages the use of mobility assists when such are possible. It includes:

A Head
B Legs
C Body
D Hands (or Feet)
E Movement

The AWARENESS section is perhaps the best indicator of the child's preparedness to benefit from training. It includes indicators of the child's ability to interact with his environment. Some of these indicators would be considered at a later stage of development, social or cognitive skills. The Awareness section includes:

A Eye Contact
B Contact With His World
C Contact With People
D Communication
E Contact With Things

SELF HELP skills are generally easier to mark because they tend to occur in structured routines. If the child has good Awareness and Physical Development scores he will likely be able to master Self Help skills with training. This section should therefore not be used to prevent a child's admission to training programs. The Self Help section includes:

A Feeding
B Eating
C Washing
D Dressing
E Toileting

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